NEW ZEALAND AND THE EUROPEAN UNION TRADE RELATIONSHIPS TOWARDS A FREE TRADE AGREEMENT

A thesis submitted in partial fulfilment of the requirements for the Degree

of Doctor of Philosophy in European Union study

in the University of Canterbury

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2018

Abstract

Early in 2017, officials from the European Union (EU) and New Zealand met to review bilateral relations. They stated that both parties should agree to sign a comprehensive free trade agreement (FTA) and that the negotiations could be launched in 2018. This was seen as a bold step that may significantly boost trade and investment between the two parties. This research examines the possible economic impacts of a FTA between New Zealand and the EU, including detailed consideration of the agricultural sector. A partial equilibrium model called the Lincoln Trade and Environment Model (LTEM) is employed to capture the effects of the FTA on the agricultural sector. Relevant scenarios were developed assuming different liberalisation levels of bilateral trade in agricultural commodities. They assumed various changes to tariffs and quotas.

The results from this research draw attention to the fact that the effects of the FTA will be more significant for New Zealand as the proportion of total trade from New Zealand to the EU is much higher than for the EU and because trade barriers on agricultural goods are higher in the EU. In New Zealand, the most significant increases in producer returns and exports to the EU are expected in the apple and wine industries. For the EU, there would be slight negative results in bilateral trade. The EU would import more agricultural products from New Zealand than before. In all scenarios, though New Zealand would export more of these products to the EU, the EU would remain a net exporter of the same. However, the results should not be interpreted as indicating that the FTA would not be desirable for the EU.

Keywords: European Union, New Zealand, free trade agreement, agriculture, partial equilibrium model, trade liberalisation

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Chapter 3-European Union and New Zealand recent FTA strategies and their potential application to future bilateral negotiations:

Section: New Zealand's negotiation strategy in its concluded FTAs

Pages: 42-50

has previously been published in Saunders, C., Saunders, J., McLellan, B., Obadovic, I., & Driver, T. (2016). *Modelling Agricultural Impacts of EU-NZ Trade Liberalisation.* AERU Research Report, Preliminary Draft Report. Lincoln University: Agribusiness and Economics Research Unit.

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Acknowledgements

I would like to thank my parents for all their unconditional love, kindness, care, sacrifices and support. Thank you for dedicating your lives and every atom of energy to me, my sister and our education. Without your generous support and encouragement, I would not be embarked on this journey. *Хвала вам од срца*.

Special thanks to my beloved fiancé for the wholehearted support, patience and love. Thank you for being there for me through all the good and bad times and for reminding me that there is a life beyond the PhD and for making this journey the most wonderful and amazing one.

Thanks to my sister, grandparents and aunts for always being there for me and providing unconditional love, care and support.

A huge thank you to my supervisors Professor Martin Holland and Professor Caroline Saunders for their unlimited guidance, expertise, support and constructive criticism during this research, completion of this dissertation would not have been possible without their generous help.

Thanks to you, John Saunders for sharing your knowledge and expertise about the model and generous patients and technical support during the model simulations.

Special thanks to Tanja and Dejan who generously opened their hearts and house and treated me like a daughter. Thank you for your enormous faith, trust, support and for being my New Zealand family.

Са љубављу, вером и надом.

Хвала и слава Христу Богу за све.

Амин.

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List of abbreviations

ASEAN	Association of Southeast Asian Nations
CAP	Common Agricultural Policy
CAPRI	Common Agricultural Policy Regionalized Impact Model
CER	Closer Economic Relations
CETA	Comprehensive Economic and Trade Agreement
CGE	Computable General Equilibrium
ECOWAS	Economic Community of West African States
EEC	European Economic Community
EU	European Union
FTA	Free Trade Agreement
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GI	Geographical indication
GTAP	Global Trade Analysis Project
HS	Harmonised System
LTEM	Lincoln Trade and Environmental Model
MFN	Most-favoured-nation
MPC	Mediterranean Partner Countries
PARC	Partnership Agreement on Relations and Cooperation
PDO	Protected Denominations of Origin
PPF	Production possibility frontier
RCA	Revealed Comparative Advantage
UK	United Kingdom
USA	United States of America
WTO	World Trade Organisation

Chapter 1
Introduction

1.1 Background

In the early 2000s, difficulties in concluding the Doha World Trade Organisation (WTO) Round encouraged parties such as the European Union (EU) and New Zealand to seek entry into other markets by signing bilateral and plurilateral trade agreements with a view to enhancing trade liberalisation. Nowadays, apart from liberalising trade in goods, trade agreements aim at liberalising services, behind-the-border regulatory non-tariff barriers, foreign direct investment flows and public procurements.

Globally, the EU and New Zealand pursue similar aims in trade agreement negotiations. Both governments participated in multilateral negotiations such as the Uruguay Round (from 1986 to 1994) and the following Doha Round (2001) and have tried to gain the most from WTO multilateral reductions in trade barriers. After struggling to make progress in the Doha Round, both have been disappointed with the failure to bring about a satisfactory conclusion. In light of the continued delays in the conclusion of the Doha Round, the EU and New Zealand have sought bilateral and plurilateral free trade agreements (FTA). In New Zealand, the shift to this bilateral trade policy occurred with the aim of providing access for its exports to its main trading partners by eliminating trade barriers and facilitating free trade. Similarly, the EU's priority is also an activist trade policy, with a focus on securing market access for its exporters through concluding FTAs. In addition, both aim to liberalise non-trade barriers in their FTAs. Non-trade barriers were one of the contributing factors in the failure of the Doha Round and nowadays are part of the new trade agenda.

In February 2016, the European Parliament passed a non-binding resolution to support commencing negotiations towards a FTA with New Zealand. Early in 2017, Bill English, the Prime Minister of New Zealand, met with Jean-Claude Juncker, President of the European Commission, and Donald Tusk, President of the European Council, to review bilateral relations.

They agreed that both parties should sign a FTA and that negotiations could be launched in 2018 (European Commission, 2016a). In September 2017, the European Commission proposed directives for negotiating a FTA with New Zealand and negotiations will commence once the Council adopts proposed directives. The most recent European Commission trade policy strategy, *Trade for All*, advocates the Commission requesting the commencement of negotiations towards a FTA with New Zealand (European Commission, 2015, p. 32).

As New Zealand and the EU currently do not have a FTA, their current trade relations are governed by the most-favoured-nation principle mostly established through a series of negotiations in the General Agreement on Tariffs and Trade (GATT). The most recent agreement, the Partnership Agreement on Relations and Cooperation (PARC), strengthens political relations and facilitates access to each other's markets in some areas, including animal products. There is currently strong motivation and priority for New Zealand to conclude a FTA with the EU.

This thesis examines issues and challenges relating to a prospective trade agreement between the EU and New Zealand. This research is timely and useful. As the title of the thesis suggests, the aim is to situate the debate in a rapidly changing international context. Indeed, at the time of writing this thesis the preliminary scoping exercise for this agreement was underway.

1.2 An overview of the studies of European Union-New Zealand trade relationships

Literature on the trade relationship between New Zealand and the EU is limited and mainly focused on discussing one-sided economic dimensions of the relationship. The majority of literature was written on the United Kingdom's (UK) accession to the European Economic Community (EEC) and the Common Agricultural Policy (CAP) and the effects of this on New Zealand were examined mostly from an economic viewpoint.

British accession to the EEC in 1973 and its impact on New Zealand were evaluated widely in the literature. Most authors warned of potentially dangerous economic consequences of reduced access to the British market and the introduction of high tariffs that New Zealand's farmers would face in its main export market (Gibbons, 2008; Hawke and Lattimore 1999, Holmes and

Pearson, 1991; Kogler, 2006; Robson, 1972). Robson (1972) highlighted that Britain's accession to the EEC was one of the most important events in the history of New Zealand (apart from the two world wars). The author saw this event as New Zealand's "fight for life" that lasted for more than 10 years as New Zealand faced restrictions on preferential access to the EEC market for agricultural products.

In her book, *The European Community and New Zealand*, Lodge (1982) examined New Zealand's trade relationships with Europe and the UK in the event of British accession. The author addressed the problems that New Zealand faced in trying secure access for its exports to the UK and the steps its government took in order to do so. Lodge (1982) highlighted the importance of the power of politics in trade relations and how this helped New Zealand to secure special access for its dairy products and retain its interests in Europe. She suggested that in order to be successful in negotiating an economic issue, New Zealand, as a small state, had to involve the political issues to have a power in the bargaining process. The author concluded that New Zealand officials and diplomats contributed significantly towards achieving access success.

Holmes and Pearson's book *Meeting the European Challenge – Trends, Prospects and Policies* (1991) was the first comprehensive attempt to analyse New Zealand-EEC relations beyond solely agricultural dimensions and British accession to the EEC. This book examined trade from a more general view by not restricting analyses to the CAP and exports of agricultural products. The authors stressed the importance of trade in manufacturing products, services and investments for New Zealand's enterprises - the challenges and opportunities that they might face with the emergence of the single market. They investigated the changes happening within the EEC as well as the creation of the single market and the potential implications for New Zealand exports. Holmes and Pearson (1991) advised on strategies New Zealand's exporters should consider when exporting to Europe.

In their article, "Britain, Butter, and European Integration, 1957-1964", Singleton and Robertson (1997) examined the trading relationship between New Zealand and the UK by focusing on trade in butter. The authors highlighted that New Zealand enjoyed preferential access for its butter to the British market under the terms of the Ottawa Agreement and that at

that time, butter exports were important to New Zealand. Furthermore, the authors explained how the UK tried to protect New Zealand's trade interests while complying with the CAP.

Singleton and Robertson (2002) extended the above article into a book, *Economic Relations between Britain and Australasia, 1945-1970*. The book focused on changes in Britain's economic relationship with New Zealand and Australia within the scope of their common membership to the Commonwealth Preference Area. This book examined the consequences of Britain's membership in the EEC for New Zeeland and Australia and compares New Zealand and Australian approaches in negotiations for accession to the British market for its agricultural products.

Davenport (2004) examined New Zealand's exports of butter, sheepmeat and wool to the countries of the EU between 1960 and 2000. Her thesis examined how exports of these products changed over four decades by following trade patterns before the UK formally expressed interest to join the EEC with the aim of understanding how Britain's accession shaped those patterns. The author showed that New Zealand was not successful in maintaining the EU market for its wool, although it was granted more liberal access to that product than for butter and sheepmeat. In contrast, the more protectionist stance towards New Zealand butter and sheepmeat did not prevent New Zealand from maintaining its exports for those commodities to European countries.

Thornton (2006) investigated the EU-New Zealand economic relationship by primarily focusing on bilateral trade in goods, services and foreign direct investments. The author also examined the CAP, WTO disputes between the two partners and the EU's enlargement as the three main challenges to the prosperity of bilateral economic relationship.

Research conducted by Benson-Rea and Mikic (2005) analysed the New Zealand-EU business relationship and the challenges faced by New Zealand firms in the EU market with reference to strategy and marketing issues. The authors found that New Zealand companies may not be addressing current opportunities in the EU market nor be prepared for new opportunities arising from it. The research suggested that New Zealand exporters should be focused on innovation, technology, quality and inter-cultural aspects of their business. Furthermore, New Zealand companies should challenge export of more sophisticated products and services to the EU

market, thus contrasting with New Zealand's reliance on the Asian markets of raw material or relatively unprocessed products.

Gibbons (2008) comprehensively analysed changes in New Zealand exports to Britain since the 1960s and the reason behind their declines over time. His research showed that Britain's membership in the EEC lowered the value of New Zealand's exports to the UK, though this event was not the only cause of the decline of exports. Gibbons (2008) argued that New Zealand's dairy product exports were trending downwards before the UK joined the EEC. Furthermore, Gibbons (2008) examined New Zealand's exports to and imports from the EU-25 countries since the early 1990s. His analysis showed that New Zealand's two-way trade with the EU increased since the 1990s, although it was still well below the trade in the 1960s.

McMahon (1990) discussed the preferential access agreements for New Zealand butter and cheese that New Zealand obtained when the UK joined the EEC by examining their impact on exports of butter and cheese. He explained how sheepmeat imports were not restricted immediately, with New Zealand's voluntary export quota introduced later because of the CAP. Furthermore, McMahon (1990) provided a detailed analysis of the CAP and its effects on New Zealand exports and preferential agreements. The author discussed the CAP reforms and suggested potential options for New Zealand trade in agricultural products. He concluded with suggestions for the development of New Zealand's trade and trading relationships with Japan, Australia, Canada, the United States of America (USA) and the European Community, highlighting that the European Community remains one of the biggest export markets for New Zealand and that New Zealand should work together with the European Community on the cooperation agreement.

Attwood (1984) evaluated in detail the CAP and the agricultural situation in the EEC by focusing on the dairy, beef and sheepmeat sectors. He also analysed factors that could influence the future of the CAP, suggesting proposals for the CAP reforms. The author concluded by discussing the CAP impacts on New Zealand's agriculture, arguing that a decline in New Zealand's exports to the UK may have happened despite Britain's accession to the EEC due to the British increase in production of agricultural products.

Saunders (2005) examined the 2002 mid-term review of the CAP and the Agenda 2000 reforms and discussed the implications of these for both EU and New Zealand agriculture. Using a

partial equilibrium model, the Lincoln Trade and Environment Model (LTEM), the author estimated the impacts of changes in EU agricultural policy on New Zealand and the EU trade and producer returns of dairy products. The results of this study showed that the CAP reforms would have an insignificant impact on New Zealand dairy producer returns because the potential positive effect of reduction in EU prices could be neutralised by the negative impact of the increase in the EU milk production quota. Similarly, Kogler (2006) used the LTEM to analyse the CAP reforms of 2003. He simulated the Single Farm Payment scheme application and its implications on New Zealand's beef and dairy sectors.

Later work by Saunders (2008) discussed future market access issues for New Zealand's agricultural exports to the EU market. Furthermore, the author examined the possible growth of environmental restrictions and consumer behaviour changes concerning New Zealand and EU trade and the relative environmental impact of New Zealand's agricultural sector compared to that of the EU. Saunders highlighted the importance of New Zealand production meeting environmental and animal welfare standards when exporting to the EU and that New Zealand's exports may be restricted based on production methods.

New Zealand and the European Union (2008) is the most recent and comprehensive book written on New Zealand's economic and political relationships with the EU. The book was based around research done by Matthew Gibbons and incorporated contributions from Martin Holland, Caroline Saunders and Carol Neill. This book examined trade relationships between the EU and New Zealand, including the history of these relationships and how they have changed over time, and emphasised the effects on New Zealand of the enlargement of the EU. This book highlighted the importance of the EU to New Zealand and the fact that the EU remains a crucial element in New Zealand's economic, political and social development.

Furthermore, Saunders et al. (2016) examined the impacts of a FTA between New Zealand and the EU by use of the LTEM. The authors assessed the impacts of a complete removal of tariffs and duties on bilateral trade in agricultural commodities. The results of this study showed that for the agricultural commodities considered, total producer returns in New Zealand and the EU were expected to increase marginally.

This review demonstrates that most of the available literature has been written on the UK's accession to the EEC and the CAP and the subsequent economic effects on New Zealand. The

importance of the relationship between the EU and New Zealand has been neglected in the literature and attention was focused on trade relationships between New Zealand and other countries in the Asia-Pacific region. There is a need to address this gap and offer comprehensive research on EU-New Zealand trade relations in a context of a FTA.

1.3 Research aim and objectives

The aim of this thesis is to examine the possible economic impacts of the FTA agreement between New Zealand and the EU, including detailed consideration of the agricultural sector. The research question is: what would be the possible economic impacts of the FTA agreement between New Zealand and the EU in the agricultural sector? The specific objectives are:

- to understand the evolution of bilateral trade and to compare the trade and agricultural policies of New Zealand and the EU;
- to analyse EU and New Zealand strategies with a focus on agriculture in their FTAs and to identify the challenges and potential issues;
- to review existing empirical assessments of bilateral trade agreements relevant to the EU and New Zealand;
- to select the most suitable model to address the research question and facilitate empirical analysis;
- to collect trade data and adapt the LTEM to simulate bilateral trade liberalisation;
- to develop different scenarios of bilateral trade liberalisation in the agricultural sector;
- to simulate those scenarios with the LTEM; and
- to make recommendations for improving future FTA negotiations.

1.4 Organisation of the thesis

The thesis is organised as follows. The next chapter provides a background to the EU and New Zealand trade relationship, including how it evolved and the current trade between them. It examines issues and challenges relating to the prospective FTA and underlines the need for new research on this topic. Firstly, the trade profiles of the EU and New Zealand are reviewed. Secondly, a brief history of trade between the two parties is presented to contextualise the

current relations. This is then followed by an analysis of the current trading patterns. Past cooperation achievements, as well as existing agreements, are considered. Approches of New Zealand and the EU towards FTA negotiations and their trade policies are then explored. Finally, the end of Chapter 2 investigates the current border protection that New Zealand and EU exporters face when they export to each other's market.

Chapter 3 analyses strategies of New Zealand and the EU in theirs recently concluded FTAs with third parties with particular reference to agriculture. The chapter outlines the challenges and obstacles the EU and New Zealand faced in formulating theirs FTAs. This data will assist in identifying the individual positions of both countries during future negotiations of the FTA between them.

Chapter 4 presents the thesis's theoretical framework and focuses on the development of international trade theories and presumed gains from free trade while addressing commonly used trade restrictions and their impacts on trade flows. Chapter 4 examines why countries trade, how they can benefit from free trade and why governments use trade restrictions despite the fact that free trade is beneficial for countries and increases their welfare. This chapter concludes with an examination of theories of regional trade integration and the economic effects of deep integration, trade creation and trade diversion.

Chapter 5 presents the main trade modelling tools and their basic elements, complemented by a review of existing empirical assessments of bilateral trade agreements relevant to the EU and New Zealand. This chapter examines the different types of models that have been used to estimate the potential effects of FTAs and how the various changes in trade policies have been implemented in different scenarios. It explains how they contribute to this study and provides an understanding of the gaps in the literature where this research will be of significant value. It identifies the advantages and disadvantages of different types of modelling and proposes the most suitable model to address the research question and engage in empirical analysis.

Chapter 6 presents the research methodology and discusses the features of the selected partial equilibrium model, the LTEM. It presents reasons for the model selection and the extension of this model is outlined in detail. Different scenarios were developed to assess the potential impacts of the FTA between New Zealand and the EU. Scenarios assumed different

liberalisation levels of the bilateral trade in agricultural commodities. The model was used to run simulations.

Chapter 7 presents the results from the LTEM modelling exercise for each scenario, including changes in producer returns, producer prices, quantity produced and net trade for the EU and New Zealand. It provides a further understanding of the outcome through a detailed discussion of the results.

The final chapter presents key conclusions of this research and the implications of the results for New Zealand and the EU negotiations. Finally, limitations to the research are addressed and recommendations are made for future studies.

Chapter 2
Background

2.1 Introduction

The purpose of this chapter is to provide a background to European Union (EU) and New Zealand trade relationships, including how they have evolved and the current trade between the two regions. It examines issues and challenges relating to the prospective free trade agreement (FTA) and underlines the need for new research on this topic.

The chapter consists of six main sections. Firstly, the trade profiles of the EU and New Zealand are reviewed. Secondly, a brief history of trade between the two regions is presented to contextualise current relations. This is then followed by an analysis of the current trade. The fourth section shows past cooperation achievements as well as existing agreements. This is followed by an examination of New Zealand and EU trade policies to explore their approaches to negotiations towards a FTA. Finally, the end of Chapter 2 investigates the current border protections that New Zealand and EU exporters face when they export to each other's market.

2.2 Trade profiles of the European Union and New Zealand

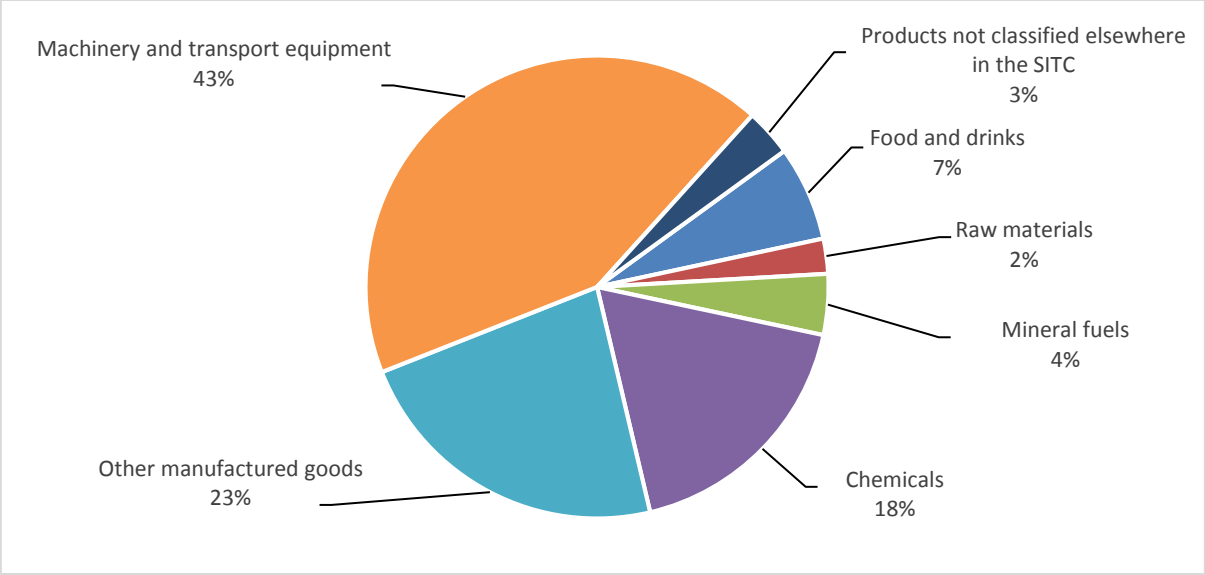
2.2.1 The trade profile of the European Union

The EU is the world's largest single market with transparent rules and regulation, embodying almost 500 million consumers trading with one of the most important currencies, the Euro. Together, the EU's 28 members account for 16 percent of the world's imports and exports, coupled with a leading position as the world's largest trader of manufactured goods and services. The total quantity of trade in goods and commercial services in 2013 was €4,603 billion, including €2,415 billion of exports and €2,188 billion of imports. The total trade in goods with the rest of the world was €3,513 billion in 2015, a figure exceeding almost three times the trade in services (European Commission, 2016b). The Single Market and a common

trade policy have made it possible for the member states to leverage between opening markets and protecting EU interests in order to enhance trade, growth and employment. The EU's exports to the rest of the world rose from €500 billion in 1992 to €1,500 billion in 2011 (European Commission, 2012). This growth was continuous, apart from a drop of €160 billion in 2009 (equivalent to 12 percent) compared to the previous year; this decrease was caused by the world financial crisis.

In 2016, the major components of the EU's exported goods were manufactured goods, amounting to around 84 percent of total exports from the EU. Machinery and transport equipment accounted for 43 percent of total exports. Other manufactured goods represented 23 percent of exports, while chemicals made up 18 percent of extra-EU exports. Primary products made up 13 percent of total exports, within which seven percent were food and drinks, four percent were mineral fuels, lubricants and related materials and two percent were raw materials, as shown in Figure 2.1.

Figure 2.1: The European Union's exports by products group as a percentage of total exports, 2016

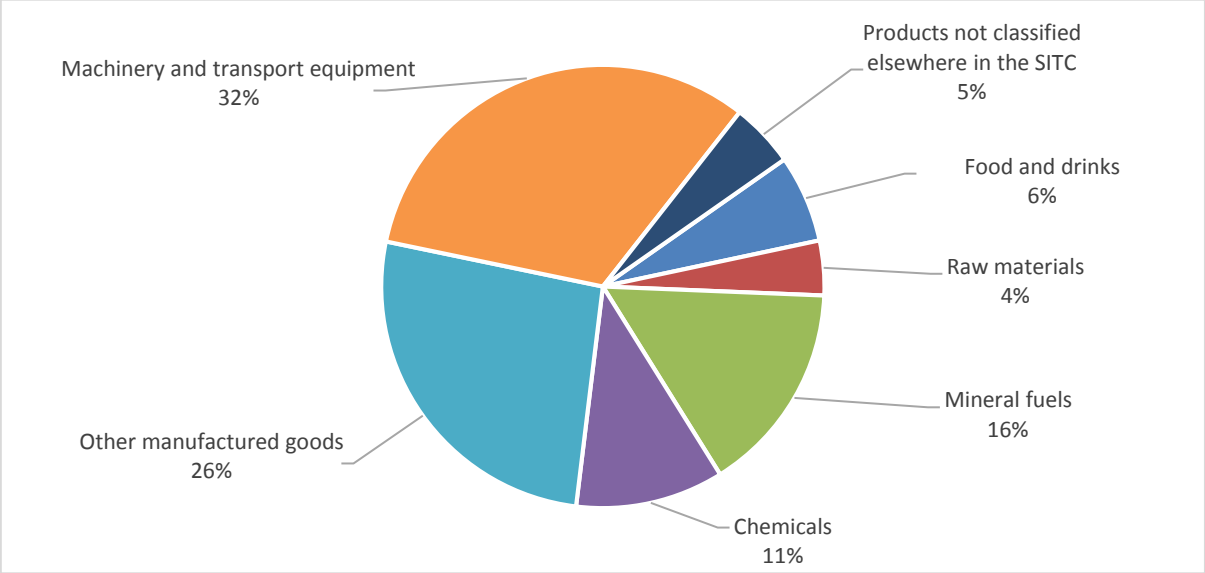


Source: Eurostat, intra- and extra-EU trade by member state and by product group, 2017.

For the EU, manufactured goods constitute the major part of its imports in 2016, totalling 69 percent. Machinery and transport equipment represented the major component of these imports at around 32 percent. Other manufactured goods accounted for 26 percent of imports, followed by mineral fuels, lubricants and related materials (16 percent) and chemical products (11 percent). The share of primary products in total imports was 26 percent. Minor exports were

food and drinks at six percent and raw materials at four percent. Figure 2.2 shows imports by product group as a percentage of total the EU's imports in 2016.

Figure 2.2: The European Union's imports by products group as a percentage of total imports, 2016



Source: Eurostat, intra- and extra-EU trade by member state and by product group, 2017.

In 2016, the EU's main external trading partners were, in order of importance, the United States of America (USA), China, Switzerland and Russia. Table 2.1 shows the EU's main trade partners, exports, imports, net trade, total trade in goods and percentage share of the total trade of goods. In the same year, the total amount of the trade in goods with the USA was €609 billion or 17.7 percent, almost 50 percent less than recorded in 2002 where the comparable figure was 24 percent. Thus, there was a significant and continuous fall in trade of goods between them. In contrast, in the same period trade in goods with China doubled, increasing from seven percent in 2002 to 14.9 percent by 2016 (worth €514 billion). The changes in the share of trade in goods with Russia were less significant (the increase of three percent was recorded), while Switzerland stayed almost unchanged (Eurostat, 2015). The EU's other major partners were, in rank order, Turkey, Japan, Norway, India and Canada. Principal trading partners in 2016 (in millions of euros) are as indicated Table 2.1.

Table 2.1: The European Union's main trading partners for the year 2016 in millions of euros

Total EU trade with	Exports	Imports	Net trade	Total trade	% of Total Trade
United States of America	362,225	247,563	114,662	609,788	17.7%
China (except Hong Kong)	170,116	344,656	-174,540	514,771	14.9%
Switzerland	142,488	121,627	20,860	264,115	7.6%
Russia	72,406	118,782	-46,376	191,187	5.5%
Turkey	78,012	66,670	11,341	144,682	4.2%
Japan	58,128	66,467	-8,339	124,596	3.6%
Norway	48,379	62,943	-14,564	111,322	3.2%
South Korea	44,511	41,430	3,081	85,940	2.5%
India	37,801	39,275	-1,475	77,076	2.2%
Canada	35,220	29,090	6,130	64,309	1.9%
Total	**1,745,479**	**1,707,747**	**37,731**	**3,453,226**	**100%**

Source: Eurostat, Extra-EU trade by partner, 2017.

2.2.2 The trade profile of New Zealand

In 2015, New Zealand's total trade in goods and services amounted to NZ$132.6 billion, an increase of NZ$9.7 billion from 2014. Exports of goods and services accounted for NZ$67.5 billion, with goods amounting to NZ$48.4 billion in 2015. The decline of 5.4 percent in goods exports can be explained by a decrease in the value of dairy products in comparison with 2014 when exports of milk powder, butter and cheese dropped 24 percent (Statistics New Zealand, 2015). On the other hand, total imports of goods and services were valued at NZ$65.1 billion in 2015, with goods imports amounting to NZ$48.8 billion, 2.8 percent more than in 2014 due to an increase in the import of vehicles, parts and accessories. For the year 2015, the annual trade balance for goods and services was a surplus of NZ$2.4 billion (Statistics New Zealand, 2015).

New Zealand's three main export destinations in 2015 were Australia, China and the EU (Statistics New Zealand, 2015). Total export of goods and services to Australia was worth NZ$13 billion, with goods comprising NZ$8.5 billion. New Zealand's total exports to Australia were reduced by four percent compared with 2014. The total merchandise exports to Australia were less affected by the fall in the value of dairy, as it is more diversified; the top 20 export commodities amounted to 46 percent of trade. Total imports from Australia were NZ$11.3 billion, with NZ$6 billion of goods imported. The top import commodity was aluminium oxide, followed by crude oil and motor vehicles.

In 2015 New Zealand's total export of goods and services to China was worth NZ$10.3 billion. Goods exports amounted to NZ$8.3 billion, 28.6 percent less than in the previous year, due to the drop in the level of milk powder exports (the top exported product to China). In the same year, NZ$9.5 billion of goods and services were imported from China, of which NZ$9 billion was made up of goods, led by computers, telephones and cell phones.

In 2015, the EU was New Zealand's top destination for goods and services imports, worth NZ$11.5 billion with goods making up NZ$8.6 billion. The leading imports were motor vehicles, amounting to NZ$1.3 billion. In contrast, New Zealand goods and services exports to the EU were worth NZ$7.8 billion (with goods making up NZ$4.7 billion) in the same year. The top export commodity was sheepmeat at NZ$1.3 billion. There was some variation in the pattern of goods exported to some of the member states; for example, there was a decline in exports to Italy and Germany and an increase to the Netherlands and Spain. New Zealand's other major partners were, in rank order, the USA, Japan, Singapore, South Korea and Malaysia. Table 2.2 shows principal trading partners in 2015 in millions of New Zealand dollars.

Table 2.2: New Zealand's main trading partners for the year 2015 in millions of NZ$

Total New Zealand trade with	Exports	Imports	Total trade	% of Total Trade
Australia	13,006	11,335	24,341	18.4
China	10,340	9,454	19,794	14.9
European Union	8,098	11,530	19,628	14.8
United States of America	7,919	8,012	15,931	12
Japan	3,614	3,332	6,946	5.2
Singapore	1,443	2,861	4,304	3.2
Republic of Korea	2,086	2,179	4,265	3.2
Malaysia	1,154	1,968	3,122	2.3
Thailand	939	2,072	3,011	2.3
Taiwan	1.200	776	1,976	1.5

Source: Statistics New Zealand, 2016.

In 2015, New Zealand's top three export commodities were dairy, meat and wood, amounting to 50 percent of total exports, with dairy products alone accounting for around 30 percent of total exports. Thus, the New Zealand economy is heavily dependent on the export of agricultural products, as is shown in Table 2.3. The share of agricultural products in exports has steadily

grown over the last decade and in 2014 reached close to 69 percent (World Trade Organisation [WTO], 2015c).

Table 2.3: New Zealand's top 10 exports by harmonised system (HS) chapter heading in NZ$

Description	HS	2008	2011	2015
Dairy	04	8,827,697	11,447,764	12,285,539
Meat and edible offall	02	4,680,754	5,397,783	6,373,371
Wood	44	1,999,126	3,199,996	3,476,074
Fruits and nuts	08	1,376,897	1,490,484	2,018,762
Machinery	84	1,906,486	1,732,814	1,677,903
New Zealand miscellaneous provisions	98	874,961	1,320,662	1,658,705
Beverages	22	979,374	1,326,407	1,651,563
Albuminoids, starches, and glues	35	1,099,901	994,344	1,474,426
Fish	03	1,125,816	1,32,331	1,407,779
Mineral fuels and oils	27	2,656,854	2,178,163	1,230,642

Source: Statistics New Zealand, 2016.

In contrast, New Zealand's imports are concentrated in manufacturing and raw materials, the main imported products being vehicles, machinery, mineral fuels and oils. The top 10 New Zealand import commodities and their values are shown in Table 2.4.

Table 2.4: New Zealand's top 10 imports by harmonised system (HS) chapter heading in NZ$

Description	HS	2008	2011	2015
Vehicles	87	5,328,370	4,270,085	6,933,452
Machinery	84	5,884,671	5,487,012	6,517,083
Mineral fuels and oils	27	7,119,719	7,237,949	6,439,712
Electrical machinery and equipment	85	3,779,806	3,894,663	3,989,500
Aircrafts	88	788,952	1,439,221	1,995,891
Plastics	39	1,592,965	1,644,509	1,962,307
Optical, medical, and measuring equipment	90	1,194,439	1,372,968	1,513,107
Pharmaceuticals	30	1,048,398	1,155,695	1,194,733
Furniture	94	637,294	642,462	950,956
Iron and steel articles	73	881,292	765,530	939,761

Source: Statistics New Zealand 2016.

2.3 New Zealand and European Union trade: A historical perspective

The roots of trade between Europe and New Zealand date back before 1795, when Maori (the first settlers), exported some agricultural products to passing European ships needing to restock. While that was minor in terms of trade, this was the first type of export and connection with Europeans (Hawke & Lattimore, 1999). In the 1790s, the economic relationship between Europe and New Zealand became more intense with the arrival of the first European settlers.

Until 1840, New Zealand was a British colony and a part of the New South Wales colony. Migrants came almost exclusively from Britain and at the beginning, the economy was based on pastoral activities such as farming, mining of gold and whaling. English law was introduced and after the independence New Zealand implemented the Westminster political system (Hawke & Lattimore, 1999). Initially, European settlers mostly exploited natural resources and traded with timber, gold, minerals, kauri gum, wool, whale and sea products and other raw materials. Land was cleared mostly by cut and burn methods and used for building cities, making pasture and land for cropping. Europeans also brought technology and farming knowledge, European grasses, seeds, livestock and machinery (Hawke & Lattimore, 1999), which contributed to a rapid growth of farms (Hawke, 1985). In this period, wool was the dominant and first substantial export to Britain. Figure 2.3 shows the value of wool in total exports from New Zealand between 1854 and 1894. As sheep flocks were rapidly growing, wool exports reached

more than 55 percent of all exports by 1874. As a result, an increase in sheepmeat supply occurred, which exceeded the domestic demand in New Zealand at that time (Hawke, 1985).

Figure 2.3: Value of wool in total exports from New Zealand in NZ$, 1854-1894

Source: New Zealand Official Yearbook 1893 and 1895. Retrieved from http://www.stats.govt.nz/browse_for_stats/snapshots-of-nz/digital-yearbook-collection.aspx

In the 1880s, the introduction of refrigeration technology changed and shaped New Zealand's exports (Hawke & Lattimore, 1999). Before this discovery, it was not possible to export unrefrigerated meat or dairy products as far as Europe. New Zealand used this opportunity and pastoral products like frozen meat and dairy products (butter and cheese) started to be exported, mostly to Britain and Australia, by the introduction of ship refrigeration technology. This was reflected in the rising proportion of agricultural exports in total and helped New Zealanders to reach higher living standards. Figure 2.4 shows the value of frozen meat, butter, cheese and wool in total exports from New Zealand between 1885 and 1894. There was continuous growth of meat and dairy products in total exports over this period. Moreover, the introduction of refrigeration narrowed the market and product structure and developed a comparative advantage in agriculture (Hawke & Lattimore, 1999).

Figure 2.4: Value of frozen meat, butter, cheese and wool in total exports from New Zealand, 1885-1894

Source: New Zealand Official Yearbook 1895. Retrieved from http://www.stats.govt.nz/browse_for_stats/snapshots-of-nz/digital-yearbook-collection.aspx

In the 1880s, Europe had started to import cheap grains from the USA and cheap meat from New Zealand and Australia, which led to an increase in supply and a decline in world prices. European farmers could not compete with the imports and in response the governments of continental Europe introduced trade barriers to protect the agricultural sector. However, the United Kingdom (UK) welcomed the cheap imports, particularly from the Commonwealth countries, and concluded numerous preferential agreements these countries. At that point, New Zealand was exporting agricultural products and importing the majority of its manufactured goods and services to and from Britain. After the removal of the Corn Law in 1846, Britain was almost the only country in Europe open to trade in food, while France and Germany maintained a protectionist trade policy in agriculture (Gibbons, 2008; Hawke, 1985; Hawke & Lattimore, 1999). Furthermore, the period of industrialisation increased the demand for food, fostering the existing bonds between Britain and the other Commonwealth countries. However, because of the Great Depression and the fall in international trade during the 1930s, Britain introduced trade barriers to protect its industries. In 1932, the Ottawa Agreement overlapped with the post-World War I period, when New Zealand and other Commonwealth countries had been given preferential access for their agricultural products to the British market (Gibbons, 2008; Nixon & Yeabsley, 2002; Saunders, 2000). In return, they agreed to keep low tariffs on British manufactured commodities, known as an imperial preference system (Saunders et al., 2016a).

With the beginning of World War II, the New Zealand government and its people initially accepted an obligation to meet the deficit of food in Britain (Holmes & Pearson, 1991). Britain agreed to take all of New Zealand's exports of meat, cheese, butter and wool to provide food to British people in the time of war; these bulk purchase agreements lasted until 1954.

After World War II, Europeans suffered from starvation. Because most of the region's infrastructure was damaged and destroyed, food production was limited and could not meet the demand. Consequently, European countries were dependent on imports of food from outside countries. Adequate nutrition and food supply are of importance to human welfare as well as governments wishing to keep political stability. At that time, most European governments looked for policies that would stimulate farmers to produce and ensure stable prices of food in the post-war period. In 1957, France, Germany, Italy, The Netherlands and Luxembourg established the European Economic Community (EEC). During the 1960s, these countries abolished customs duties on trade between them and developed common policies on trade and agriculture. These objectives were later implemented through the Common Agricultural Policy (CAP) and the Treaty of Rome. Primarily, Europe wanted to achieve self-sufficiency in food production (Kogler, 2006). However, it was evident that if Britain wished to become a member of the EEC "it would have to reconcile continuation of the Commonwealth preference system and the Community membership obligations" (Holmes & Pearson, 1991, p. 14).

The economic partnership that was established on strong historical ties between New Zealand and the UK began to weaken in the 1950s. By the late 1950s, New Zealand protected its growing manufacturing industries and this hindered British imports. Furthermore, New Zealand started to import more of high-value manufactured goods, such as aircraft and railway products from North America. At the same time, New Zealand agricultural exports to Britain become less important for the UK due to the increase in subsides to British farmers (Gibbons, 2008). European countries were growing faster than Commonwealth economies and as a result the UK saw joining the EEC as more economically beneficial than the existing relationship with Commonwealth. In 1961, the UK decided to join the EEC, promising New Zealand to secure special arrangements in order to protect New Zealand's interests and prevent fatal consequences for the New Zealand economy. During the 1960s, the UK attempt to join the EEC was opposed by the French President, Charles de Gaulle, who believed that the UK was not enough European

country. In 1969, the French President resigned and the UK started new round of negotiations to join the EEC. During 1960s, there were regular trips to Europe by New Zealand politicians to seek support in the UK and the EEC in favour of New Zealand's interests.

In 1973, the UK joined the EEC. This event left the New Zealand economy vulnerable, leaving it to fight for diversification of its markets. British accession to the EEC in 1973 and the impacts of this event on New Zealand were evaluated widely in the literature. Most authors wrote about the potentially dangerous economic consequences and the impacts of the introduction of high tariffs that New Zealand's farmers would face in the main export markets (Gibbons, 2008; Hawke & Lattimore, 1999; Holmes & Pearson, 1991; Kogler, 2006; Robson, 1972).

When the UK joined the EEC, New Zealand received preferential access for its dairy commodities under Protocol 18 of the Treaty of Accession of the UK (Council Regulation (EEC), 1983). New Zealand was the only developed country that was granted special treatment because its economy was heavily dependent on exports of only a few commodities (Gibbons, 2008; Hawke & Lattimore, 1999; Kogler, 2006). This provided for New Zealand's butter and cheese exports to the UK to be permitted on decline trend, while sheepmeat imports were not restricted immediately but with a preferential quota being introduced later (McMahon, 1990).

New Zealand received a substantial five-year transitional period for its butter and cheese, which guaranteed access and prices for agreed quantities to the UK market while finding other export markets. Protocol 18 allowed an initial volume of 165,000 tonnes of butter to decline to 138,000 tonnes in the fifth year, 1977. After a five-year provisional period, the European Council decided that access for New Zealand butter should be maintained, with the quota determined on a year-by-year basis by gradually reducing quantities. In 1984, the Council decided to allow the quota of 83,000 tonnes to be gradually reduced to 75,000 tonnes in 1988. In 1994, during the Uruguay Round, New Zealand succeeded in increasing its country-specific butter quota to 76,667 tonnes.

Protocol 18 allowed the initial quota of 68,000 tonnes of cheese to decline to 15,000 tonnes over five years, ending in 1977. Unlike butter, the agreement did not leave the open possibility for an extension. New Zealand cheese exports to the UK after the transitional period were supposed to end in 1978. In Dublin in 1975, the European Council decided that the New Zealand annual quota for cheese would be 9,500 tonnes, comprising of 6,500 tonnes of cheddar and 3,000

tonnes for processing cheese. In 1993, the European Commission allowed exports of butter and cheese into the rest of the EU. In 1996, the EU increased the New Zealand country-specific quota to 11,000 tonnes because of the accession of new members Finland, Sweden and Austria. This increase included an extra 500 tonnes of cheddar cheese and 1,000 tonnes of processing cheese. New Zealand was allowed to export butter and cheese only to the UK.

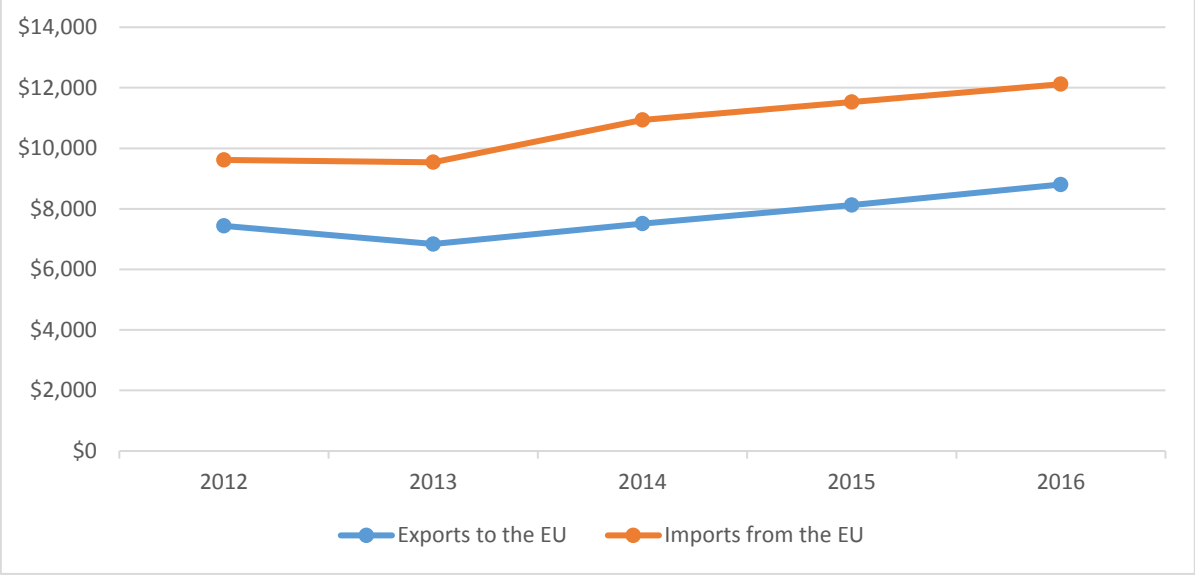
As indicated, when the UK joined the EEC, New Zealand received no preferential access for its sheepmeat under Protocol 18. When the UK complied to the common external tariff system of the EU, New Zealand exports of sheepmeat faced a tariff of 20 percent on entering the EEC and the UK. In 1980, New Zealand introduced a voluntary export quota of 245,000 tonnes for its sheepmeat exports to the UK in return for a lowering of the tariff to 10 percent (McMahon, 1990). In 1989, New Zealand reduced the preferential access quota to 205,000 tonnes in exchange for a zero in-quota tariff (McMahon, 1990). Later, during the GATT Uruguay Round, New Zealand succeeded in increasing its country-specific tariff quota to 225,000 tonnes of sheep and goat meat on an annual basis at zero duty. The quota was increased to its current level of 226,700 tonnes after the EU enlargement in 2004.

New Zealand was granted the privilege of the largest country-specific quotas among all the other nations taking part in the negotiation process with the EU at that time (Lodge, 1982). The special relationship with the UK government helped New Zealand secure this position and establish good links with Brussels.

2.4 Current trade between New Zealand and the European Union

As New Zealand's second largest trading partner in recent years, the EU is an important trading partner in goods and services. By comparison, New Zealand was the 48th largest trading partner in goods to the EU in 2016 (European Commission, 2017). New Zealand's two-way trade with the EU accounted for NZ$8,805 million of exports and NZ$12,118 million of imports in goods and services for the year 2016. There has been a slight increase in two-way trade with the EU in recent years, as shown in Figure 2.5.

Figure 2.5: New Zealand's two-way trade with the European Union in goods and services in millions of NZ$



Source: Statistics New Zealand, 2017.

New Zealand is a small and open economy dependent on international trade and market access to key trading partners. The EU provides a stable market for New Zealand's exporters. In 2016, New Zealand's exports of goods and services were valued at NZ$8,805 million, with goods exports worth NZ$5,405 million and services exports amounted to NZ$3,400 million. There has been slight and continuous growth in goods and services exports to the EU market in the last five years, as shown in Table 2.5.

Table 2.5: New Zealand's exports to the European Union

Exports to the EU in $NZ million	2012	2013	2014	2015	2016
Goods	4,877	4,510	5,033	4,935	5,405
Services	2,564	2,330	2,476	3,194	3,400
Total	7,440	6,840	7,509	8,129	8,805

Source: Statistics New Zealand, 2017.

The EU was New Zealand's top import partner in 2016 (Statistics New Zealand, 2016) when imports from the EU accounted for NZ$12,118 million. Recent years have seen continuous growth and an increase of almost NZ$3,000 million since 2012. In 2016, imports of goods worth NZ$9,019 million and imports of services valued at NZ$3,100 million. Table 2.6 shows the continuous increase in imports of goods and services from the EU in recent years.

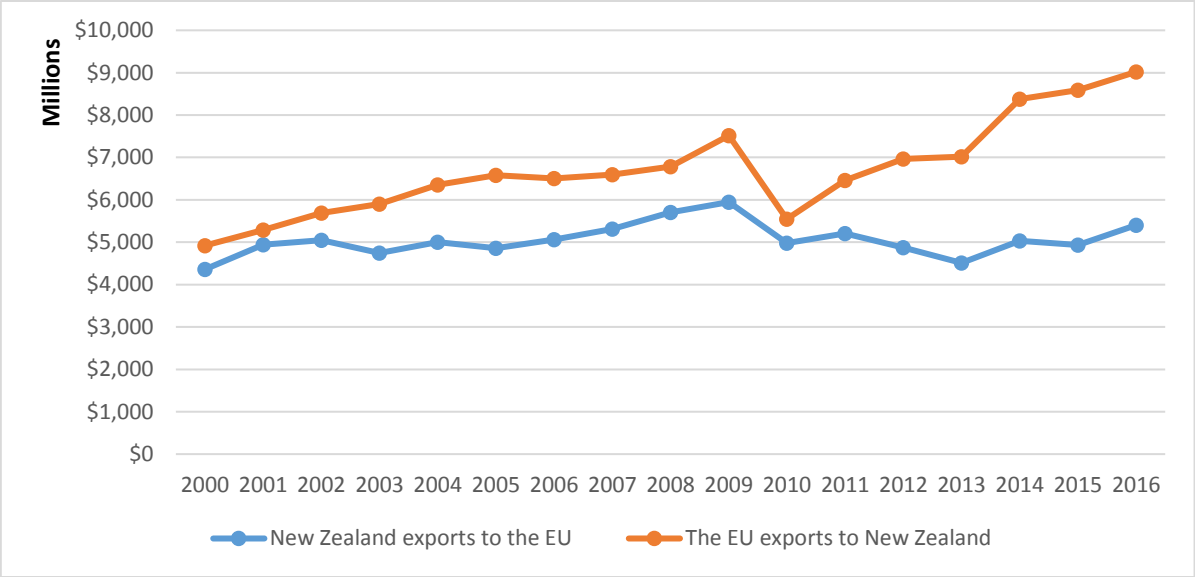
Table 2.6: New Zealand's imports from the European Union

Imports from the EU in $NZ million	2012	2013	2014	2015	2016
Goods	6,963	7,017	8,375	8,591	9,019
Services	2,655	2,520	2,559	2,941	3,100
Total	9,618	9,537	10,934	11,532	12,118

Source: Statistics New Zealand, 2017.

In 2016, New Zealand exported NZ$5,405 million worth of goods to the EU and imported NZ$9,019 million of goods from the EU, creating a trade deficit of NZ$3,614 million. Figure 2.6 shows that for the last 16 years, New Zealand's trade deficit with the EU has increased over time. New Zealand exports of goods to the EU increased slightly between 2000 and 2009, at which point they started to decrease. This decrease can be explained by the World Financial Crisis of 2008 and the fact that New Zealand signed the FTA with China in the same year. Since 2013, there has been a slight increase in exports of goods to the EU. The EU's exports of goods to the New Zealand market had slow and continuous growth until 2009 when a sharp decline of NZ$2,000 million occurred. This could be because the EU and its members were struggling through the European debt crisis. One year later, the EU's exports started to grow again, a trend that has continued until now.

Figure 2.6: New Zealand exports of goods to the European Union and imports from the European Union, 2000-2016



Source: Statistics New Zealand, 2017.

In 2016, New Zealand's agricultural exports to the EU market amounted to $NZ3,981 million, or 73.6 percent of the total exported goods to the EU. Agricultural exports to the EU represented 13 percent of New Zealand's total agricultural exports, as shown in Table 2.7. In the same year, the EU's agricultural exports to New Zealand amounted to $NZ1,035 million, while the total exports of goods to New Zealand were worth $NZ9,019 million. The EU's agricultural exports to New Zealand represented 11.5 percent of the total exported goods to New Zealand. In 2016, New Zealand's agricultural imports from the EU were 17 percent of the total agricultural imports.

Table 2.7: New Zealand total exports and imports of agricultural goods and with the European Union

	2014	2015	2016
New Zealand exports of agricultural products in $NZ million			
To the EU	3,817	3,708	3,981
Total	31,917	29,730	30,269
Exports to the EU as a % of total exports in agricultural goods	12%	12%	13%
New Zealand imports of agricultural products in $NZ million			
From the EU	773	880	1,035
Total	5,425	5,710	6,269
Imports from the EU as a % of total imports in agricultural goods	14%	15%	17%

Source: Statistics New Zealand, 2017.

Traditionally, New Zealand largely exports agricultural products to the EU, while manufactured goods mostly dominate the EU's exports to New Zealand. Thus, there is a clear differentiation in the types of products that dominate imports and exports between the two parties. In 2016, New Zealand's top five exports to the EU were sheepmeat (NZ$1,430 million), wine (NZ$525 million), fresh fruit (NZ$433 million), wool not carded or combed (NZ$229 million), apples, pears and quinces (NZ$190 million). Most importantly, the EU was the primary export destination for sheepmeat, which accounted for 48 percent of the total exports that was worth NZ$2,988 million. This was almost double the amount exported to China, the second largest market for New Zealand's sheepmeat. Wine was the second top export to the EU, having grown continuously for the last five years, as shown in Table 2.8. The EU is the top export destination for kiwifruit, apples and pears. In 2012, butter and spreads were the fourth top export to the EU market, amounting to NZ$218 million. However, over last four years a sharp decline in exports has occurred, with exports of butter and spreads dropping to NZ$90 million. Casein exports increased from NZ$92 million in 2012 to NZ$144 million in 2016. This pattern of exporting primary commodities and importing industrial goods is consistent with New Zealand's other trading partners.

Table 2.8: New Zealand's top exports to the European Union by products in NZ$ million

Product	2012	2013	2014	2015	2016
Sheepmeat	1401	1225	1290	1320	1430
Wine	374	368	431	482	525
Fruit, fresh	318	286	306	351	433
Wool, not carded or combed	215	180	196	193	229
Apples, pears and quinces	130	180	189	182	190
Tanned cattle hides and skins	116	120	156	150	144
Casein	92	106	159	155	144
Meat and edible offal	163	127	135	124	125
Mechano-therapy and massage appliances	81	81	101	91	125
Molluscs	56	53	68	58	99
Unwrought aluminium	144	138	95	114	94
Butter and dairy spreads	218	128	208	106	90

Source: Statistics New Zealand, 2017.

Traditionally, the EU has mainly exported industrial and mechanical goods to New Zealand. In 2016, motorcars and other vehicles primarily designed for the transport of persons were the leading exports (NZ$1,289 million), followed by aircraft (NZ$508 million), retail medicaments (NZ$412 million), turbo-jets and turbo-propellers (NZ$202 million). Table 2.9 shows the EU's top exports to New Zealand by products for the last five years, the majority of which have grown since 2012. Pig meat is the only agricultural product in the top 10 exports. In 2012, exports of pig meat amounted to NZ$56 million, while by 2016 this had doubled, amounting to NZ$115 million. In recent years, wine exports have also been growing, reaching an amount of NZ$81 million. In 2016, wine was one of the EU's top 20 exports to New Zealand.

Table 2.9: The European Union's top exports to New Zealand by products in NZ$ million

Product	2012	2013	2014	2015	2016
Motor vehicles	771	858	1146	1264	1289
Aircraft	276	275	608	479	508
Retail medicines	409	384	370	385	412
Turbo-jets and turbo-propellers	409	384	128	150	202
Human, animal blood and antisera	78	102	143	144	169
Tractors	197	213	241	214	168
Trucks and vans	123	150	233	193	145
Motor-vehicle parts and accessories	90	92	116	105	118
Pig meat	56	64	70	112	115
Medical, dental or veterinary instruments	90	84	86	97	114
Dish washing machinery	71	75	74	75	109
Trailers and semi-trailers	47	52	74	85	88

Source: Statistics New Zealand, 2017.

The EU and New Zealand are both relatively large producers and exporters of agricultural products and agriculture is an important sector in both economies. Thus, the next section focuses on bilateral trade of the most common agricultural products between the EU and New Zealand, as well as total production and exports of the same goods.

As indicated in Table 2.10, the EU is a significant producer of beef and sheepmeat, exporting 21 percent and 29 percent of its total beef production in 2000 and 2013, respectively, of which almost none was shipped to New Zealand. The entire EU exports of sheepmeat amounted to 16 percent and 28 percent of the EU's total sheepmeat production in 2000 and 2013, respectively, of which eight tonnes were exported to New Zealand.

New Zealand is a relatively large producer and exporter of red meat. In 2013, New Zealand exported 85 percent of its total beef production, exporting 11,280 tonnes of beef (2.34 percent of its total exported tonnes) to the EU. There has been a slight increase in the total New Zealand exports of beef meet and exports to the EU. However, New Zealand does not export significant quantities of beef meat to the EU due to the existing tariff rate quota and the high tariff within the quota. The EU is the primary export destination for New Zealand's sheepmeat. New Zealand exported 71 percent and 88 percent of the total volume of sheepmeat produced in 2000 and 2013, respectively. Sheepmeat exports to the EU accounted for 54 percent and 35 percent of

the total exported sheepmeat in 2000 and 2013, respectively. A decrease in the export of sheepmeat to the EU market in the last 15 years can be explained by the weaker demand in the EU and by the increased demand in Asia. Furthermore, in 2009 New Zealand signed an FTA with China that currently allows duty-free access for its sheepmeat.

Table 2.10: New Zealand and European Union production and exports of red meat

	CARCASSES			
	BEEF		SHEEP	
	2000	2013	2000	2013
New Zealand				
Total tonnes produced	571,783	563,749	533,000	450,075
Total tonnes exported	457,153	482,450	379,086	397,507
Export as a % of total tonnes produced	79.95%	85.57%	71.12%	88.32%
Exported tonnes to the EU	3,718	11,280	204,956	138,904
Exported tonnes to the EU as a % of total exported tonnes	0.81%	2.34%	54.06%	34.94%
European Union				
Total tonnes production	8,416,341	7,388,613	1,202,214	853,515
Total tonnes exported	1,809,444	2,186,443	202,536	241,388
Export as a % of total tonnes produced	21.49%	29.59%	16.84%	28.28%
Exported tonnes to New Zealand	8	1	11	------
Exported tonnes to New Zealand as a % of total exported tonnes	0.0004%	0.00004%	0.005%	------

Source: OECD-FAO Agricultural Outlook 2015-2024, by commodity. Various years.

Table 2.11 sets out the total production and exports in tonnes of dairy products for 2000 and 2013. Production data indicates that the EU and New Zealand are relatively large producers of milk, butter and cheese. New Zealand exported more than 90 percent of its total butter production in both years: in 2000, 107,014 tonnes were exported to the EU market (31 percent of the total exported tonnes), while in 2013 butter exports to the EU amounted to 50,686 tonnes (almost 11 percent of the total exported quantity of butter). Similarly, New Zealand exports more than 85 percent of its total production of cheese, exporting 33,357 tonnes to the EU market in 2000 and 12,825 tonnes in 2013. However, in last the decade there has been a declining trend in New Zealand's butter and cheese exports to the EU market.

The EU is a relatively large producer of butter. In 2013, the EU exported almost 40 percent of its total butter production, amounting to 760,712 tonnes. Only 14 tonnes were shipped to New Zealand. The EU is also a significant producer of cheese, exporting 37 and 51 percent of its total cheese production in 2000 and 2013, respectively. In 2000, the EU exported 250 tonnes to New

Zealand and 1,263 tonnes in 2013. The EU's total cheese exports, including those to New Zealand, have increased in the last decade.

Table 2.11: New Zealand and European Union production and exports of dairy products

	DAIRY PRODUCTS					
	MILK		BUTTER		CHEESE	
	2000	2013	2000	2013	2000	2013
New Zealand						
Total tonnes produced	12,235,392	18,883,000	358,528	509,000	296,745	311,000
Total tonnes exported	------	------	343,831	461,146	257,591	276,886
Export as a % of total tonnes produced	------	------	95.90%	90.59%	86.81%	89.03%
Exported tonnes to the EU	------	------	107,014	50,686	33,357	12,825
Exported tonnes to the EU as a % of total exported tonnes	------	------	31.12%	10.99%	12.95%	4.63%
European Union						
Total tonnes production	151,322,972	152,400,870	2,098,282	1,934,667	6,398,391	7,908,485
Total tonnes exported	------	------	711,504	760,712	2,364,013	4,057,000
Export as a % of total tonnes produced	------	------	33.91%	39.32%	36.95%	51.30%
Exported tonnes to New Zealand	------	------	6	14	251	1,263
Exported tonnes to New Zealand as a % of total exported tonnes	------	------	0.0008%	0.002%	0.01%	0.031%

Source: OECD-FAO Agricultural Outlook 2015-2024, by commodity. Various years.

As produce is grown counter-seasonally between the northern and southern hemispheres, fruit and vegetable production and exports are important for both the EU and New Zealand. As indicated in Table 2.12, the EU and New Zealand are large producers of kiwifruit. In 2013, the EU was the second largest producer and the top exporter of kiwifruit globally, while New Zealand was ranked as the third largest producer and the second largest exporter of kiwifruit globally. That year the EU exported 94 percent of its total kiwifruit production, of which 1,052 tonnes shipped to New Zealand (less than a half percent). New Zealand exported 83 percent of its total kiwifruit production in 2013, 16 percent of which went to the EU. Table 2.12 also shows production and exports of apples for the EU and New Zealand. The EU is a significant producer of apples, in 2013 producing 12,070,422 tonnes and exporting 31 percent of its total apple production, none of which was shipped to New Zealand. In the same year, New Zealand produced 442,301 tonnes and exported 322,136 tonnes of apples. The EU was the top export destination for apples, accounting for 33 percent of the total apple exports, or 107,338 tonnes.

Table 2.12 also shows EU and New Zealand production and exports of wine. The EU's members France, Italy and Spain have been the top three producers of wine in the world for the last 20 years. Overall, the EU is a large producer and exporter of wine. In 2013, total EU wine production was 14,310,120 tonnes, with total exports amounting to 6,666,642 tonnes (47 percent of total production). Between 2000 and 2013, total EU wine production declined slightly, while total exports increased. In 2013, the EU exported 3,550 tonnes of wine to New Zealand.

In 2000, the total New Zealand wine production was 60,200 tonnes, of which 38,257 tonnes were exported. By 2013, total wine production had increased to 248,400 tonnes, with total exports of 175,766 tonnes, showing that the production and export of New Zealand wine have increased significantly in the last two decades. New Zealand exported 23,219 and 61,274 tonnes to the EU market in 2000 and 2013, respectively, making wine New Zealand's second largest exported commodity to the EU.

Table 2.12: New Zealand and European Union production and exports of other products

	OTHER PRODUCTS					
	KIWIFRUIT		WINE		APPLES	
	2000	2013	2000	2013	2000	2013
New Zealand						
Total tonnes produced	261,638	382,337	60,200	248,400	620,000	442,301
Total tonnes exported	249,509	318,651	38,257	175,766	373,829	322,136
Export as a % of total tonnes produced	95.36%	83.34%	63.54%	70.75%	60%	73%
Exported tonnes to the EU	61,709	50,288	23,219	61,274	110,091	107,338
Exported tonnes to the EU as a % of total exported tonnes	24.73%	15.78%	60.69%	34.86%	29%	33%
European Union						
Total tonnes production	526,571	708,235	19,259,190	14,310,120	14,182,718	12,070,422
Total tonnes exported	374,343	663,958	4,530,368	6,666,642	2,678,929	3,682,064
Export as a % of total tonnes produced	71.43%	93.74%	23.52%	46.59%	19%	31%
Exported tonnes to New Zealand	170	1,052	4,122	3,550	------	------
Exported tonnes to New Zealand as a % of total exported tonnes	0.04%	0.16%	0.09%	0.05%	------	------

Source: OECD-FAO Agricultural Outlook 2015-2024, by commodity. Various years.

Trade in services between New Zealand and the EU accounts for an increasingly significant amount of the overall trade. The EU is the second largest market for New Zealand's exports of

services, while the EU is the number two market for New Zealand's services imports. In 2016, New Zealand's exports of services to the EU accounted for NZ$3,400 million, reflecting a slight increase in recent years. Table 2.13 shows New Zealand's exports of services to the EU between 2012 and 2016. Travel services and tourism were the most important. In 2016, they constituted the major part of the exports in services, totalling 66 percent of the total service exports. In the same year, personal travel services represented the major component of the travel services, around 85 percent. European tourists amounted to 14 percent of all visitors to New Zealand in 2014. Other important New Zealand's export service sectors include education and transport. These industries have been growing each year and present the potential to attract more tourists and students.

Table 2.13: New Zealand's services exports to the European Union, 2012-2016 in millions of NZ$

Major services exports	2012	2013	2014	2015	2016
Total travel services	1,592	1,353	1,501	2,092	2,266
• Business travel services	98	77	108	148	138
• Education travel services	177	175	178	195	193
• Other personal travel	1,316	1,101	1,215	1,748	1,935
Transportation services	426	402	365	441	479
Other business services	191	144	132	144	177

Source: Statistics New Zealand, 2017.

In 2016, the EU's exports of services to New Zealand were valued at NZ$3,100 million, with transportation services being the most significant service exported. Table 2.14 shows the EU's exports of services to New Zealand in the last five years, showing a small but continuous increase in services exported.

Table 2.14: The European Union's services exports to New Zealand, 2012-2016 in millions of NZ$

Major services exports	2012	2013	2014	2015	2016
Total travel services	506	482	562	572	634
• Business travel services	52	52	55	58	61
• Education travel services	18	14	16	18	20
• Other personal travel	436	417	491	496	553
Transportation services	967	929	913	1,261	1,314
Other business services	384	342	392	440	444

Source: Statistics New Zealand, 2017.

Bilateral trade in goods and services is a small part of the picture. The EU has traditionally been one of the most important sources of investment in New Zealand, due to the traditional trading links with the UK. The EU is the second largest investment destination and investor of foreign direct investment, in 2016 investing NZ$9 billion into the New Zealand economy, while New Zealand's investment to the EU amounted to NZ$2.7 billion. Another important area of economic cooperation between the EU and New Zealand is in science and innovation.

2.5 The European Union and New Zealand arrangements and agreements

New Zealand and the EU already have a range of arrangements and agreements. These agreements are presented in Table 2.15 to show the level of like-mindedness and progress in the existing relationship. These arrangements contribute to the formal framework of the mutual relationship, giving a baseline for future progress in negotiations and shaping particular areas of common interests. New Zealand and the EU already favour each other with mutual collaboration on many challenging trade issues that are common stumbling blocks in FTA negotiations. These agreements could help to ensure a platform for high-level quality negotiations, making future progress smoother.

Table 2.15: Agreements between New Zealand and the European Union

Agreements between New Zealand and the European Union	
Agreement on Trade in Mutton, Lamb and Goat Meat	1980
Arrangement between the Commission of the European Communities and the Government of New Zealand for Cooperation in Science and Technology	1991
Agreement on Sanitary Measures Applicable to Trade in Live Animals and Animal Products	1997
Agreement on Mutual Recognition in Relation to Conformity Assessment	1998
Joint Declaration on Relations between the European Union and New Zealand	1999
Agreement between the European Community and New Zealand on certain aspects of air services	2006
Joint Declaration on Relations and Cooperation	2007
Agreement on Scientific and Technological Cooperation	2009
Agreement establishing a framework for the participation of New Zealand in European Union crisis management operations	2012
The Partnership Agreement on Relations and Cooperation (PARC)	2016

Source: Own compilation based on official agreements between the EU and New Zealand.

The Joint Declaration on Relations and Cooperation provides political and economic direction for the cooperation. It was signed in 2007 and includes a detailed programme of action for cooperation between the EU and New Zealand. The Joint Declaration is a comprehensive document that covers different areas of mutual interaction, including global and regional security, counter-terrorism, human rights, movement of people, development cooperation, economic and trade cooperation, environment and climate change, transport, people-to-people links, education and science and technology (Joint Declaration, 2007). Furthermore, other agreements facilitate particular areas of collaboration. These show how the relationship developed throughout the 1990s. Notable examples are the Science and Technology Arrangement, the Mutual Recognition Agreement and the Veterinary Agreement. The purpose of these bilateral agreements is to facilitate trade in industrial goods between the EU and New Zealand by lowering the technical barriers encompassing assessment procedures (European Commission, 2016b). It covers around one third of all EU products exported to New Zealand, including medical devices and products, telecommunication gear, machinery and pressure equipment (European Commission, 2016b). The Veterinary Agreement entered into force in 1997 with the aim of covering animal health aspects of bilateral trade; specifically, trade in live animals and animal goods with a particular focus on safeguarding public and animal health.

Senior EU and New Zealand officials meet on an annual basis to exchange opinions on the bilateral trade relationship. On 26 March 2014, EU President Van Rompuy, EC President Barroso and New Zealand Prime Minister John Key agreed to deepen the New Zealand-EU relationship in the areas of security and politics, innovation and science and trade and investment (European Union External Action, 2014). They also reviewed progress on the negotiations of Partnership Agreement on Relations and Cooperation (PARC), which encompasses a number of provisions in the economic and trade cooperation area. Negotiations of the same were concluded in July 2014 and the agreement was signed in 2016. The PARC is the most significant agreement so far signed between the two parties.

In October 2015, New Zealand and EU leaders agreed to begin cooperating towards a deep, comprehensive and high-quality FTA (European Commission, 2015). In February 2016, the European Parliament passed a non-binding resolution to support commencing negotiations for a FTA with New Zealand. Early in 2017, the Prime Minister of New Zealand Bill English met Jean-Claude Juncker, President of the European Commission, and Donald Tusk, President of the European Council, to review bilateral relations. They stated that both countries should sign a FTA and that the negotiations could be launched in 2018. In September 2017, the European Commission proposed directives for negotiating a FTA with New Zealand and negotiations will commence once the Council adopts proposed directives. Furthermore, the most recent European Commission's trade policy strategy, *Trade for All*, suggests that the Commission should request to commence negotiations on a FTA with New Zealand (European Commission, 2015, p. 32).

New Zealand and the EU's current trade relations are governed by the most-favoured-nation (MFN) principle established in the World Trade Organisation (WTO) Uruguay Round. Agreements presented in this section strengthen political ties and facilitate access to each other's markets in some other areas, including animal products. New Zealand currently does not have a concluded or under-negotiation trade agreement with the EU, therefore NZ is highly motivated to negotiate and conclude a FTA with the EU.

2.6 Trade policies of New Zealand and the European Union

The next section examines EU and New Zealand trade policies and their changes over time. Different aims and priorities have influenced their trade policies. The trade policy of New Zealand is mainly governed by economic interests with the main purpose of increasing benefits for its exporters. In contrast, the EU's trade policy is influenced by different aims and priorities, which sometimes conflict each other. The majority of the EU's objectives are influenced by economic interests, with the aim of gaining market access and increasing exports of own goods, capital and services. Other objectives can be classified as non-trade objectives, such as adoption of standards, single market rules, human rights and democracy. This section helps to understand how the EU and New Zealand will approach their FTA and what they will be trying to achieve in the FTA negotiations.

2.6.1 The European Union's trade policy

In the early 2000s, difficulties in concluding the Doha WTO Round and the EU's interest in enhancing trade liberalisation encouraged the EU to enter other markets by signing bilateral trade agreements. Currently, the EU's priority is an activist trade policy with a focus on securing market access for its exporters through concluding FTAs. This trade policy was defined in the 2010 document *Trade, Growth and World Affairs*, with the aim to help the EU recover from the economic crisis and play a significant role in keeping markets open around the globe. Until today, bilateral trade agreements have been a priority for the EU. The most recent communication, *Trade for All*, published in 2015, stresses the same priority.

Until now, the EU has completed FTA negotiations with South Korea, Peru, Colombia, Canada, Singapore and Vietnam. Advanced talks were concluded with the Gulf countries, India, the USA and Japan (European Commission, 2010). The EU has strategic economic interests in East Asia and aims to broaden trade and investment relationships with this region. To fulfil this objective, the EU has initiated FTA talks with a group of emerging Asian countries, including India, the Association of Southeast Asian Nations (ASEAN) and begun negotiations for bilateral investment treaties with China and Myanmar. The EU has also initiated FTA negotiations with New Zealand, Australia, Tunisia and Indonesia.

The EU has become a more assertive and powerful player in international trade relationships, with successes translating economic strength into trade power. By changing its protectionist trade policy to a more liberal approach, the EU became the most enthusiastic supporter of the liberal trading regime. Today, it appears that the EU is more willing to further liberalise its markets, even for agriculture, in return for substantial economic benefits. According to Orbie (2008), being a significant power in services and manufacturing (block size effect) gives the EU an advantage in pursuing its economic interests in FTA talks.

Meunier and Nicolaïdis (2006) argued that the EU is a "trade power" that can affect other states' policies and positions in return for access to its market. They asked the question "what the EU is trying to gain in trade negotiations" and concluded the answer was two forms of EU trade power: "power in trade" and "power through trade". The former is used to secure market access and increase exports of own goods, capital and services. The second is used to achieve non-trade objectives, such as democratisation, development, adoption of standards and single market rules in other regions. Additionally, they argued that the EU is a "conflicted trade power" not only because of differences among the member state governments but because of various tensions between the different norms and priorities the EU wants to promote through trade. The EU's guiding principles sometimes contradict one another; for example, the EU promotes multilateralism but on the other hand, negotiates bilateral trade agreements or protects its agricultural sector while promoting economic development.

Garcia (2013) examined how the "conflicted trade power" has taken place in negotiations of preferential trade agreements with third parties. She argued that since the end of the Cold War, the EU's trade policies and objectives have evolved from soft and normative power to more "realist" goals in an attempt to maintain its competitiveness and position in the world. Garcia (2013) applied the theoretical frameworks of "idealist" and "realist" to the EU's trade policy through different periods of time. The results showed that the EU's trade strategies have been balanced by normative goals and realistic interests through time. Both policy choices, idealist and realist, exist in parallel and any changes in trade policy are more in format than in deep content. The majority of the EU's trade policies (e.g. region building objectives), even when they are more normative in appearance, are in favour of security and economic interests. The author found that the primary reason for these changes overall was with the aim to achieve

economic interests through trade policy. Besides, Orbie (2008) found that in the past two decades, the EU's trade policy has primarily been influenced by a free trade agenda, rather than by other non-trade objectives. This presents the EU as a rational and realistic player in the global economy. As a result, the economic realist theory can provide an explanation and framework for an analysis of the EU's trade policy. This approach offers a new contribution to the literature on the EU's trade policy.

Woolcock (2007) examined the shift towards a more active use of FTAs and motives behind the change in the EU policy. He highlighted the EU objectives with regard to the content of FTAs and concluded that numerous motives shaped the agreements from partner to partner. Political motivations were the main reason for agreements with the EU's neighbouring countries. Since the 1990s, the EU's agreements with the Central and Eastern European countries were mostly motivated by foreign policies and security interests with the aim of creating a stable post-Cold War political and economic order within Europe. The Stability and Association Agreements with the Western Balkan countries were driven by a security interest. The EU uses this strategy as a means of promoting political and economic stability in other regions. Other agreements were motivated by development policy aims, such as agreements with African, Caribbean and Pacific states. Woolcock further argued that commercial reasons also drive the EU to initiate FTAs, subdividing the commercial aims into three categories:

> Neutralizing potential trade diversion resulting from FTAs between third countries, fostering strategic links with countries or regions experiencing rapid economic growth and enforcement of international trade rules. (2007, p. 3)

The FTA between the EU and Mexico is a typical example of neutralising trade diversion. Mexico's accession to the North American Free Trade Area was followed by a decline in trade between the EU and Mexico. The EU's motive was to neutralise this trade diversion and gain equal access to the North American Free Trade Area and Mexican market. With the same aim, the EU initiated trade agreements with Mercosur, Chile, the ASEAN and South Korea (Woolcock, 2007). Strengthening diplomatic links with emerging markets and implementation of international trade rules such as intellectual property are examples of other motives the EU pursues in its agreements. However, the EU's FTAs vary considerably from case to case and

trade policies are modified according to each partner (Garcia, 2012; Siles-Brügge, 2014; Woolcock, 2007).

Young and Peterson (2006) investigated key features of the new trade politics and the EU's response to them. They identified three elements that influence new trade politics: traditional trade actors and their new concerns, new trade players and new international balance of power in international trade negotiations. The changing nature of international trade forced the traditional trade players to adopt new preferences in a search for a deep trade agenda. For example, traditional trade actors sought to include regulations, investment rules and environmental and labour standards in agreements. This, in turn, created concerns about how new international trade rules might affect public policy objectives such as environmental protection and competition policy. These fears contributed to an awakening of new players, including non-governmental organisations and governments from developing countries. As argued by Young and Peterson (2006), modern trade politics indicate that trade is now viewed in a much broader political sphere than traditional trade. Consequently, these changes also influenced trade policies within the EU. The authors further examined how the EU responded to "the new trade politics" and how this has changed priorities within its trade policy. As such, the authors argued that the EU advocates for a "deep" trade agenda and thus pursues objectives such as intellectual property, public procurement, competition policy and services into FTAs with third parties. According to the authors, the most compelling explanation for its trade policy is the single market project and the EU's trade policy reflects its own experience of integration.

Studies on the EU's trade policies often report that policymakers within the EU can implement trade policies independently, according to their economic beliefs and other preferences (Meunier & Nicolaïdis, 2002; Meunier, 2005). Thus, they are relatively isolated from social influences. Furthermore, they can achieve trade liberalisation despite the resistance of protectionist forces. This argument explains the shift from protectionism to liberal trade policy, as policymakers since the 1960s could implement trade policies providing for the general welfare. The EU's institutional framework is specially designed to minimise the influence of social interests. This trade policy authority was delegated to the EU as a result of the Rome Treaty (1957). Meunier (2005) suggested that European policymakers "choose to centralise

trade policy-making in order to insulate the process from protectionist pressures and, as a result, promote trade liberalisation" (p.8).

Dür (2008) questioned this approach and examined the role of economic interests in policymaking within the EU's trade policy. He examined the EU positions in two rounds of multilateral world talks: the Kennedy Round and the Doha Development Agenda. His research revealed that in both rounds of negotiations, the EU's position overlapped with the demands of large business and sectoral groups across a large number of issues. The author argued that domestic players are influential in shaping the EU's trade policy. In particular, economic interest groups that can access policymakers have the potential to influence policy decisions and outcomes. The author subdivided the EU's positions into 19 issues and showed that strong economic interests supported all of them, while a few groups, such as farmers and environmentalists, opposed the EU's bargaining positions. Service and investment industries were particularly strong in lobbying during the multilateral trade negotiations.

Furthermore, Siles-Brügge (2014) examined the influence of economic interest groups in the EU and South Korea FTA talks. Service and investment groups strongly supported liberalisation, while the automotive industry lobbied against the FTA. During the negotiations, the EU's policymakers supported the interests of exporters and disadvantaged the import-competing groups. The EU succeeded in obtaining substantial gains for its services exporters and investors in exchange for opening its automobile sector while it recovered from the world financial crisis. The author argued that the economic interest groups were influential, but noticed that the EU's policymakers primarily stood for neoliberal beliefs derived from neoclassical trade theory and international comparative advantage.

The EU's sectors most likely to benefit from FTAs are services. Business input is crucial in FTA negotiations. The EU's service sectors and the largest transnational corporations are grouped in the European Forum and Business Europe, who actively support FTAs. In contrast, labour unions, agricultural lobbies and non-governmental organisations argue against FTAs. However, FTAs may help the EU to expand its international influence and solidity of the block by exporting its rules (Garcia, 2012). Since the 1990s, the EU has sought to include a democracy clause in its FTAs that defines human rights, along with provisions that define nuclear non-proliferation and environmental issues. This approach shows that trade has a

significant role in exporting foreign policy projection (Garcia, 2012). Through FTAs the EU also seeks to strength international rules, particularly intellectual property, public procurement, competition and safety standards.

In general, the EU's trade policy has been influenced by different aims and priorities, some of which conflict each other. Normative goals such as a promotion of the value of democracy, regional integration, development aims, security interests and economic interests were balanced through time. However, most of the EU's trade policies are influenced by economic interests with the aim of achieving a free trade agenda through trade.

2.6.2 The Common Agricultural Policy and its most recent reform

Agriculture in the EU is heavily protected and subsidised through the Common Agricultural Policy (CAP). The CAP led to an increase in production within the EU. Consequently, self-efficiency increased, which turned the EU into a net exporter of agricultural products, disrupting world markets, including New Zealand, as a traditional food exporter (Saunders et al., 2016a). This section briefly elaborates on the specific objectives of the CAP and how it resulted in surpluses of food within the EU. This is followed by the most recent CAP reforms in order to show a variety of support actions, how they have changed over the last five years and the changes within which an FTA with New Zealand has to be considered.

2.6.2.1 Common Agricultural Policy

The CAP is one of the oldest policies of the EU. After World War II, a significant shortage of food encouraged most governments to regulate agricultural markets, including countries within the EU. At that time, the EU wanted to achieve food security and integrate farmers into society. Prices for agricultural products were assured to stimulate production and reach self-sufficiency. Article 33 of the Treaty on the Functioning of the EU, later integrated into The Lisbon Treaty as Article 39, defined the specific objectives of the CAP:

> To increase agricultural productivity by promoting technical progress and by ensuring the rational development of agricultural production and the optimum utilisation of the factors of production, in particular labour;
>
> Thus, to ensure a fair standard of living for the agricultural community, in particular by increasing the individual earnings of persons engaged in agriculture;

To stabilise markets;

To assure the availability of supplies;

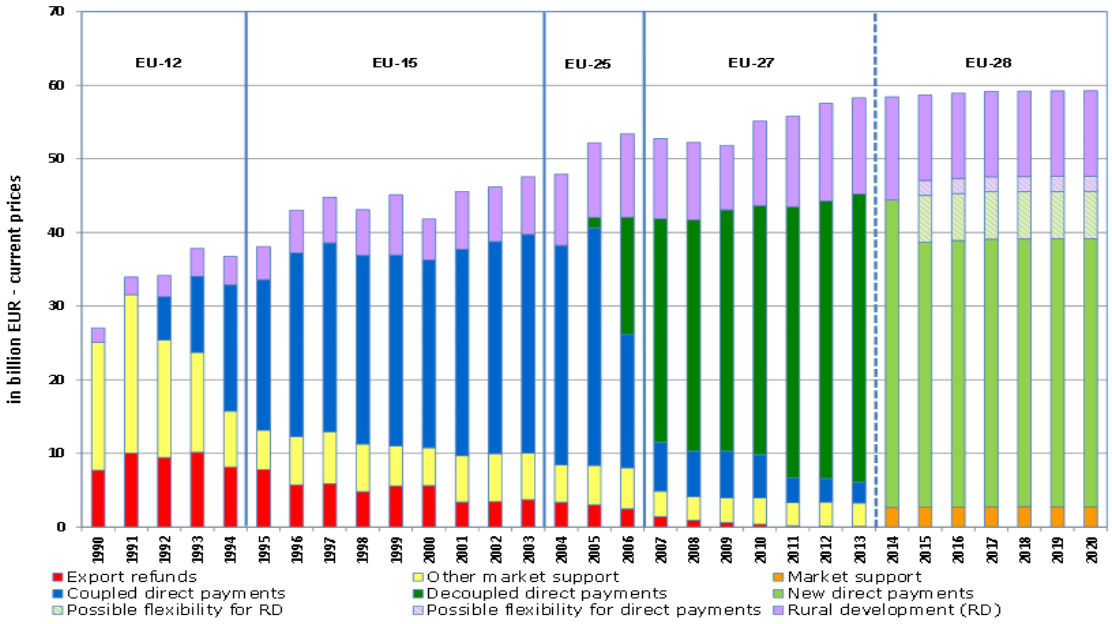
To ensure that supplies reach consumers at reasonable prices. (Treaty of Lisbon, 2007, Article 39)

Food shortages became a thing of the past and surpluses began to occur. The earliest surpluses happened in milk and associated dairy products such as butter and cheese. Consequently, the EU budget expenditures on the CAP accounted for more than 70 percent. Nowadays, the CAP annual budget is roughly €59 billion, financing a variety of support actions through the European Agricultural Fund for Rural Development and the European Agricultural Guarantee Fund. In 2015, the EU was a net exporter of food products and beverages, reaching €129 billion of exports (European Commission: Agriculture and Rural Development, 2016). The CAP has passed through many reforms in its long history, particularly during the past decade. The next section introduces the most recent reforms.

2.6.2.2 Common Agricultural Policy after 2013

The CAP went through several reforms in the last decades. Nowadays, the CAP is significantly different from that of the 1990s or 2000s. In 1992, the McSharry reforms laid the foundation for all subsequent reforms. Later, the Agenda 2000 reforms introduced for the first time a rural policy under the agricultural directorate, representing a shift from production-oriented objectives to more rural policy goals. It also introduced social, economic and environmental goals within the aims of the CAP. It removed production-oriented objectives by cutting prices and increasing direct payments (Saunders, 2005). In 2003, the Fischler reforms introduced a new system of single farm payments with the aim of eliminating the link between support and production. Accordingly, a single farm payment was not given to a farmer with respect to what and how much is produced, but by how the agricultural land is maintained if production is matched with public, animal and plant health welfare and standards (Kogler, 2006). Figure 2.7 shows CAP actual and expected expenditure from 1990 to 2020, as well the evolution of the CAP reforms.

Figure 2.7: The path of Common Agricultural Policy expenditure by year (1990-2020)



Source: European Commission: Agriculture and Rural Development (2015). Overview of CAP Reform 2014-2020, Brussels: European Commission. Retrieved from http://ec.europa.eu/agriculture/policy-perspectives/policy-briefs/05_en.pdf

In 2010, the most recent CAP reform began with a public debate and was followed by a legislative proposal. In 2013, the new CAP for 2014-2020 was legislated and the subsequent reforms have been in place since January 2014. A new shift in agricultural policy is towards producer support and more land-based approached, rather than focusing on product support. Therefore, the current CAP policy relies on three long-term objectives: "viable food production, sustainable management of natural resources and climate action and balanced territorial development" (European Commission: Agriculture and Rural Development, 2015, p.2).

The joint provision of public and private goods is the major change of the CAP, stating that farmers should be rewarded for their contribution to landscape, farmland biodiversity and climate stability. As a result, decoupled payments support is being replaced by direct payments. The Single Payment and Single Area Payment Schemes were succeeded by the Basic Payment Scheme. Firstly, in order to receive a full CAP funding, a farmer should align with the compulsory basic layer (Basic Payment) of environmental requirements. Payment entitlements are allocated at a regional or national level to all farmers based on their eligible hectares in the first year of application. The direct payments per hectare based on historical parameters have

been adjusted with a minimum national average direct payment per hectare by member states until 2020. Therefore, the member states have the freedom to tailor solutions to their specific needs and allocate direct payments by their choice. Additionally, the Green Direct Payment was introduced, which accounts for 30 percent of the national direct payment envelope for a maintenance of permanent grassland, ecological area and crop diversification. Novelty is a Young Farmers scheme, developed to face an ageing population, as only 14 percent of farmers are younger than 40 years old. All young farmers (under 40 years) have the chance to receive an additional payment. Member states can decide how to use the rest of the direct payments through other schemes such as redistributive payment, small farmer schemes and coupled support (for a protection of potentially vulnerable sectors) (European Commission: Agriculture and Rural Development, 2015).

The CAP for 2014-2020 includes a removal of all production restrictions on the volume of sugar, dairy and wine in response to the growing world demand for these products. In April 2015, milk production quotas were abolished. This has increased competition in the EU internal market and several members subsequently announced their willingness to increase milk production (Saunders et al., 2016a). However, the increased production of milk also increased competition (including for New Zealand producers) and lowered the world price of milk

In 2017, sugar quotas and restrictions on the planting of new vines were abolished. Furthermore, the new declaration stressed the importance of providing for support measures in the wine sector to strengthen competitiveness. Those measures are defined and financed by the EU, while member states can use national support programmes such as the promotion and marketing of wines. Other support programmes in the wine sector include support for innovation and investments in the industry and by-product distillation to protect the environment while ensuring the quality of wines. Other preventive measures include harvest insurance, mutual funds and green harvesting. On the other hand, support to vine growers by an allocation of payment entitlements was abolished in 2015. Furthermore, the planting right system came to an end and was replaced by a new system. Authorisation to plant vines may be granted without a cost charged to producers in order to plant new vines with the aim of increasing supply in response to the progressive growth in demand in the world market. The

new scheme of authorisation for vine planting applies from January 2015 to December 2030 (European Commission: Agriculture and Rural Development, 2015).

Regarding dairy products and fruit, several aid schemes were abolished and few new aid schemes were introduced. For example, aid for skimmed milk and skimmed-milk powder feeding and processing into casein and caseinates has been removed. Aid for the supply of fresh fruit and vegetables, processed fruit and vegetables and banana products to children was introduced under the School Fruit and Vegetable Scheme. The School Milk Scheme provides aid for the supply of milk and dairy products to children (European Commission: Agriculture and Rural Development, 2015).

Market access measures such as tariffs, quotas and special agricultural safeguards have not been addressed directly by the reforms and the main futures of the Rural Development Policy stay unchanged.

2.6.3 New Zealand free trade policy

As one of Britain's former colonies, New Zealand developed a strong comparative advantage in agriculture. Consequently, the trade relationship with the UK had a major impact on New Zealand's trade policies. The post-World War I period led to the development of Commonwealth preferences in Ottawa in 1932, where New Zealand received preferential access for its products to the British market (Nixon & Yeabsley, 2002). At the beginning of World War II, the UK and New Zealand extended this agreement and negotiations led to a bulk purchasing agreement for meat, butter, cheese and wool (Saunders et al., 2016a). New Zealand produced and supplied the greatest possible quantity of food to feed British people in the war. For several decades, New Zealand agricultural products had guaranteed market access to the UK and this encouraged agricultural production.

However, the New Zealand government wanted to broaden the economic base of the state and create the greatest number of diverse occupations, especially in manufacturing industries. From the beginning of the twentieth century until the late seventies, the New Zealand government introduced a broad range of policies, including trade policies, to meet these goals. At that time, the average tariff rate was around 20 percent and there were no major changes in tariffs, apart from a reduction of tariffs on British products as decided in the outcome of the Ottawa agreement (Lattimore & Wooding, 1996). In the event, the New Zealand government

introduced two main trade policy instruments, a package including import licencing and export incentives. The purpose of import licencing was to limit the importation of various goods; in this way, the New Zealand government was supporting an expansion of manufacturing local industries and safeguarding full employment of people. Therefore, the New Zealand government would not give licences for imports competing with locally-made products. Production incentives to the main exportable industry, agriculture, included subsidies on lime, taxation concessions, research in the agricultural sector, development finance and quality insurance programmes. Later, explicit export subsidies for other industries were introduced to encourage exports rather than focus on the control of imports.

New Zealand's bulk purchase arrangement with the UK ended in 1954 and was followed by a significant decline in the British market share of New Zealand's bulk food products trade. At that time, New Zealand's export performance was distinguished by a high reliance on agricultural goods in three major products, meat, wool and dairy, mostly to the UK.

In 1961, the UK applied to enter the EEC. A decade later, in 1973, the UK's access to the EEC left New Zealand to diversify its markets. The New Zealand government introduced different policies to encourage diversification, including specific development loan programmes for pastoral farmers, subsidies for transport and the price of fertiliser and a tax write-off for certain capital expenditure on farm development (Saunders et al., 2016a). A scheme of supplementary minimum prices was introduced. Producers of sheepmeat, beef, wool and dairy products were guaranteed the determining price at the beginning of each season. New Zealand was able to diversify its markets and became more focused on the fast-growing, much closer Asian countries. Besides, the government supported the diversification of products being sent from New Zealand; for example, investments were made into innovation and planting of commercial Chinese gooseberries (later named kiwifruit).

In the 1970s, New Zealand concluded a FTA with its most significant trading partner, Australia. This agreement was limited and only covered products traded between the two partners. In 1983, the Closer Economic Relations (CER) with Australia came into force with the aim of developing a full free trade area by 1995. The New Zealand government saw the agreement as an important way to increase market share for manufacturing industries, services and investment flows.

In 1984, a new government came into power and initiatives towards trade policy liberalisation were adopted. In the event, the import licencing scheme was eliminated by 1992. Tariffs were cut drastically and all specific tariffs were converted to ad valorem tariffs. Export incentives were gradually removed from 1984 onward. The government adopted a new approach and supported the agricultural sector through negotiations with other governments on conditions of market access for New Zealand goods and services.

At this time New Zealand used a broadly-oriented trade policy based on unilateral, bilateral, multilateral and regional components (Hawke & Lattimore, 1999). A unilateral policy means that the domestic economy should be more open by lowering trade barriers for imports while taking into consideration its interest. The government was participating in multilateral negotiations such as the Uruguay Round and later the Doha Round, trying to gain the most it could from the WTO multilateral reductions of barriers. After struggling to make progress in the Doha Round, a shift to the bilateral trade policy occurred with the aim of providing access for New Zealand exports to the main trading partners, eliminating trade barriers and facilitating free trade. It is stressed that, while a small state like New Zealand has little power in a trade negotiation and is often a policy taker, New Zealand may have some potential to position itself above other countries in the context of a particular issue of mutual interest.

2.7 Existing barriers to trade between the European Union and New Zealand

As previously discussed, there is a long history of trade between the EU and New Zealand. As part of this trading history, New Zealand has access through preferential quotas to the EU market for its high-quality beef, sheepmeat, butter and cheese, as explained in this section in depth. As New Zealand and the EU do not have a bilateral trade agreement and as they are both members of the WTO, apart from preferential quotas they trade on the MFN principle. The next section focuses on the current border protections in place between New Zealand and the EU, including tariffs, tariff quotas and regulatory norms. Border protections and their effects are explained (from a theoretical perspective) in detail in Chapter 4.

2.7.1 Tariffs

Currently, New Zealand has relatively low tariffs for most products. In 2014, New Zealand's average applied MFN tariff rate was 2.4 percent. In the same year, the simple average applied MFN tariff on manufactured goods was 2.5 percent and on agricultural products was 1.7 percent (WTO, 2015b), as shown in Table 2.16. In the same year, the EU's average applied MFN tariff rate, including the ad valorem equivalents of non-ad valorem tariff rates, was 6.4 percent. The average applied MFN tariff rate was 14.4 percent on agricultural products and 4.3 percent for non-agricultural products. This shows that the average applied MFN tariff in the EU was three times higher than in New Zealand, while the average applied MFN tariffs for agricultural and non-agricultural products were eight times and two times higher, respectively. Table 2.16 shows average MFN tariff rates and other barriers to trade for the EU and New Zealand in 2014. New Zealand has 7,510 tariff lines in comparison to 9,379 tariff lines in the EU. More than one half of tariff lines are duty-free in New Zealand, in contrast to around one quarter in the EU. Use of tariff quotas is one of the border protection methods used in the EU, taking five percent of all tariff lines (WTO, 2015b).

Table 2.16: Tariff protection in the European Union and New Zealand, average most-favoured-nation tariff rates (%) in 2014

	New Zealand	The European Union
Simple average most-favoured-nation tariff	2.4	6.4
Simple average most-favoured-nation tariff on agricultural products	1.7	14.4
Simple average most-favoured-nation tariff on manufactured products	2.5	4.3
Duty-free most-favoured-nation tariff lines	58.3	25.1
Tariff quotas (% of all tariff lines)	0.0	5
Non-ad valorem tariffs (% of all tariff lines)	0.1	10.6
Total number of tariff lines	7,510	9,379
Ad valorem rates	3,091	8,382
Duty-free lines	4,381	2,356
Specific rates	6	651
Alternative rates	0	64
Compound	0	199

Source: Own compilation based on New Zealand and the EU WTO Trade Policy Review Profiles 2015.

As stated in the section on trade between the EU and New Zealand, the EU has primarily exported industrial and mechanical goods to New Zealand, including cars and other vehicles

primarily designed for the transport of persons, aircraft, retail medicaments, tractors, trucks, vans, turbo-jets and turbo-propellers. Upon entering New Zealand, EU products of each of these sectors are subject to customs duties. Transportation commodities exported to New Zealand are subject to an average MFN applied duty of 4.3 percent, while 12 percent of tariff lines are duty-free. Electrical and non-electrical machinery have different duty rates: non-electrical machinery has an average MFN applied tariff of 1.9 percent, while electrical machinery has an average MFN applied duty of 2.8 percent. The average applied duty for medicaments is 4.5 percent and 47 percent of tariff lines enter duty-free (WTO, 2015c). At present, the most protected industries in New Zealand are the textile and footwear industries. Consequently, high tariffs still levy on footwear and textile products; average ad valorem equivalents were 37 and 36 percent in 2014, respectively.

Agriculture is an important sector in New Zealand and comprises a significant portion of New Zealand exports. However, New Zealand agriculture operates with minimal government intervention, is market-oriented and measures such as export subsidies for agricultural goods do not exist, as described in the section above on New Zealand's free trade policy. Tariffs on agricultural products are significantly low. The maximum MFN applied duty on all agricultural products lines is five percent. Of dairy goods entering New Zealand, in 2014, 73 percent of tariff lines are duty-free and the remainder has an average MFN applied duty of 1.3 percent. Animal products have an average MFN applied tariff of 1.5 percent, while fruit, vegetables and plants have an average MFN applied duty of 1.1 percent. More than 70 percent of tariff lines are duty-free for both groups of products. The average applied tariff for beverages and tobacco is 3.1 percent, although 38 percent of tariff lines enter duty-free (WTO, 2015c).

In the EU, agriculture is heavily protected and subsidised and as such the EU has relatively high tariffs and other trade restrictions, especially for agricultural commodities. Non-ad valorem tariffs impose high protectionism and take 10.4 percent of all tariff lines, most of which are on agricultural products. As New Zealand traditionally exports agricultural products to the EU, this means access to the EU market is currently limited. By trading with the EU on the MFN principle, New Zealand faces relatively high tariffs on its agricultural products in the EU market in comparison to some of its competitors. New Zealand agricultural products face a simple average MFN tariff of 16.7 percent on traded exports, two times higher than the simple average

MFN for all EU trade partners. Trade-weighted EU tariff protectionism on New Zealand agricultural products was 24.8 percent in 2014, four times higher than for most EU partners (WTO, 2015c).

New Zealand's top exports to the EU are sheep and beef meat, wine, fresh fruit, butter, cheese and dairy. Within agricultural products, all dairy products entering the EU are subject to the highest MFN average tariff of 36 percent and no single tariff line is duty-free. Sugars and confectionary have an average MFN applied tariff of 25.7 percent, while animals and their products have an average MFN applied duty of 20.2 percent. Furthermore, 11 percent of sugars and confectionery and approximately 28 percent of animal products enter the EU duty-free. The average applied duty for fruit, vegetables and plant products is 13 percent and almost 12 percent of tariff lines enter duty-free (WTO, 2015b). Table 2.17 sets out MFN tariffs for agricultural products in the EU in 2014.

Table 2.17: The European Union summary statistics of most-favoured-nation tariffs for agricultural products, 2014

	Number of lines	Simple average (%)	Tariff range (%)	Share of duty-free lines (%)	Share of non-ad valorem tariffs (%)
WTO agricultural products	2,069	14.4	0-635.4	19.2	46.5
Animals and products thereof	351	20.2	0-288.9	15.1	68.7
Dairy products	152	36.1	1-635.4	0	98.7
Fruit, vegetables and plants	503	13.1	0-183.5	11.9	17.1
Coffee and tea, cocoa and cocoa preparations	47	12.5	0-65.2	14.9	51.1
Cereals and preparations	230	15.7	0-75.8	8.7	80
Oil seeds, fats, oil and their products	174	6.4	0-117.1	35.6	6.9
Sugars and confectionary	44	25.7	0-119.7	4.5	88.6
Beverages, spirits and tobacco	303	13.6	0-116.2	18.2	55.8
Cotton	6	0	0	100	0
Other agricultural products	259	5.2	0-85.8	51	22

Source: WTO (2015) *Trade Policy Review*. Report of the Secretariat. European Union WT/TPR/S/317.

As indicated in Table 2.17, the share of non-ad valorem tariffs rates is high in the EU, providing a greater degree of protection. Averages are calculated based on the national tariff line level of eight digits. Tariffs for dairy products range between one and 635 percent. Rates above 100 percent are ad valorem equivalents, applying to particular agricultural commodities; for

example, in the dairy sector the ad valorem equivalent for whey and modified whey is 635 percent. Tariffs on beverages, spirits and tobacco vary from zero to 116, with the highest ad valorem equivalent of 116 percent for grape juice. Examples of other high ad valorem equivalents are 83 and 159 percent on prepared and preserved mushrooms and 288 and 143 percent on prepared and preserved poultry, respectively.

In New Zealand, the most common applied duties are ad valorem tariffs, with only 0.1 percent of all tariff lines being non-ad valorem tariffs. On the other hand, the EU's tariff schedules include a variety of non-ad valorem tariffs. In particular, agricultural products are subject to complex tariff structures such as compound tariffs and specific tariffs. Tariff line levels of four digits on dairy products are shown in Table 2.18, in order to demonstrate the complexity of the system and to explain why ad valorem equivalents for some particular products reach such high rates.

Table 2.18: The European Union's tariffs on dairy products

Harmonised system (HS) tariff code	Description	Most-favoured-nation tariff
0401	Liquid milk and cream	From €12.9 per 100kg net up to €183.7 per 100kg net depending on tariff line
0402	Skim milk powder and whole milk powder	From €1.19 per kg + €21 per 100kg up to €183.7 per 100kg net depending on tariff line
0404	Whey	From €7 per 100kg up to €167.2 per 100kg depending on tariff line
0405	Butter	€189.6 per 100kg
0406	Cheese	From €140.9 per 100kg to €221.2 per 100kg
1702	Lactose	€14 per 100kg

Source: European Union (2017). TARIC database. Retrieved from http://ec.europa.eu/taxation_customs/dds2/taric/taric_consultation.jsp?Lang=en

2.7.2 Tariff quotas

In New Zealand, tariffs on imported agricultural products are considered to be one of the lowest in the world, while import quotas and licensing as a method of protectionism do not exist (WTO, 2015c). New Zealand may apply tariff rate quotas on apples, pears and hop cones. However, these quotas have not been in use and in practice the MFN tariffs on these products are zero.

Tariff quota is one of the border protection methods used in the EU, accounting for five percent of all tariff lines (WTO, 2015b). In the EU, 112 separate tariff quotas were in operation in 2012 and tariff rates within quotas varied between zero and 100 percent. In 2013, EU tariff quotas covered 19.2 percent of all tariff lines for agricultural products, while for animal products and the dairy sector quotas applied on 35.3 percent and 31.6 percent of tariff lines, respectively (WTO, 2013). The shares of quotas in total tariff number lines are shown in Table 2.19.

Table 2.19: The European Union's share of quotas in total number of lines of most-favoured-nation tariff for 2013

	Share of quotas (%)
WTO agricultural products	19.2
Animals and products thereof	35.3
Dairy products	31.6
Fruit, vegetables and plants	13
Coffee and tea, cocoa and cocoa preparations	42.6
Cereals and preparations	28.7
Oil seeds, fats, oil and their products	0.0
Sugars and confectionary	22.7
Beverages, spirits and tobacco	14.2
Cotton	0.0
Other agricultural products	7.7

Source: WTO (2013) Trade Policy Review. Report of the Secretariat. European Union WT/TPR/S/284.

During the Uruguay Round, New Zealand succeeded in obtaining a country-specific tariff quota of 225,000 tonnes (carcass weight equivalent)[1] of sheepmeat and goatmeat on an annual basis at zero duty. New Zealand received the privilege of the largest country-specific quota among all the other nations taking part in negotiations with the EU at that time. This country-specific quota was a consequence of New Zealand's voluntary export restraint agreement with the EU before the Uruguay Round when New Zealand restricted its exports to 205,000 tonnes. The EU granted the second largest quota to Argentina of 23,000 tonnes, followed by Australia (19,186 tonnes), Chile (6,800 tonnes) and other counters were provided smaller amounts (Commission

[1]Carcass weight equivalent means that one kilogram of quota is used for one kilogram of bone-in product, while for one kilogram of boneless product 1.67 kilogram of quota is used for lamb and for goatmeat and mutton is 1.81 kilogram of quota.

Implementing Regulation (EU), 2011). Following the EU's enlargement in 2004 and 2007, the tariff quota rate was increased to 228,254 tonnes (New Zealand Meat Board, 2016). Once a country-specific tariff quota is fulfilled, every additional imported product faces tariff rates of 12.8 percent plus the fixed amount in the range of €90.2 to €311.8 per 100 kilograms per net (Commission Implementing Regulation (EU), 2011). The fixed amount can be different for products in the same category.

New Zealand holds a specific tariff rate quota for high-quality beef granted during the Uruguay Round of 1,300 tonnes by product weight, valid for the annual period from 1 July to 30 June. An ad valorem tariff of 20 percent applies within the quota (Beef and Lamb New Zealand, 2013; Commission Implementing Regulation (EU), 2013b). Apart from this, New Zealand exports of beef are treated under the EU's MFN quotas presented in Table 2.20. Many countries in the world compete to utilise these quotas.

Table 2.20: The European Union most-favoured-nation tariff rate quotas for beef

Specification	**Most-favoured-nation quotas (tonnes)**	**In-quota tariff**
Frozen beef	53,000	20%
Processing beef (of bone-in equivalent of frozen beef intended for processing in the EU)	63,703)	A products: 20% B products: 20% + (€994.5 – €2,138.4 per tonne)
Grain-finished high-quality beef	48,200 (quota is allocated to eligible product as it arrives at the port of entry, i.e. a first come/first served basis)	0%

Source: Commission Implementing Regulation (EU) No 593/2013 of 21 June 2013 opening and providing for the administration of tariff quotas for high-quality fresh, chilled and frozen beef and for frozen buffalo meat [2013] OJ L 170.

As discussed, New Zealand cheese and butter enters the EU market under country-specific tariff rate quotas. New Zealand's specific butter quota was granted when the UK joined the EEC in 1973 (Council Regulation (EEC), 1983). The current annual volume for specific butter quota is 74,693 metric tonnes while the in-quota tariff is €70 per 100 kilograms. This applies to butter that falls into the following description and harmonised system (HS) code ex 0405 1011, 0405 1019 and 0405 1030:

> Butter, at least six weeks old, of a fat content by weight of not less than 80 percent but less than 85 percent manufactured directly from milk or cream without the use of stored materials, in a single, self-contained and uninterrupted process (which may involve the cream passing through a stage where the butterfat is concentrated and/or fractionated). (Commission Implementing Regulation (EU), 2013a)

There are two country-specific tariff rate quotas for New Zealand cheese. The quota for cheese for processing (HS code 0406 9001) is 4,000 tonnes and for whole cheddar cheeses (HS code ex 0406 9021) is 7,000 tonnes, making a total combined volume of 11,000 metric tonnes per year, with an in-quota tariff rate of €17.06 per 100 kilograms for both. Cheddar cheese must fit the following description:

> Whole Cheddar cheeses (of the conventional flat cylindrical shape of a net weight of not less than 33 kilograms but not more than 44 kilograms and cheeses in cubic blocks or in parallelepiped shape, of a net weight of 10 kilograms or more) of a fat content of 50 percent or more by weight in the dry matter, matured for at least three months. (Commission Implementing Regulation (EU), 2013a)

To accommodate the imposed tariff quotas by the EU, New Zealand administers export licences. Export permits are mandatory in order to export certain dairy products, high-quality beef, sheep and goat meat. In the case of meat, the New Zealand Meat Board allocates export quotas.

2.7.3 Regulatory norms

The EU uses a range of regulatory norms to protect its agricultural products, including quality policy. The quality policy is a part of the CAP and aims to promote the quality of goods rather than quantities of unlimited production. It enables producers to obtain fair prices, to better compete with imports and guarantees quality to consumers. In order to protect the names of quality foodstuffs and agricultural products, the EU has developed three quality schemes: protected geographical indications, protected designation of origin and traditional speciality guaranteed schemes (Regulation (EU), 2013). The EU framework for the protection of quality foodstuffs and agricultural products was legalised for the first time in 1992, with several changes afterwards. Nowadays, quality standards are present across most agricultural commodities.

According to the Council Regulation from 2006, Article 93, designation of origin means that the characteristics and quality of the product are essentially due to a specific geographical place and that production takes place in that geographic area. A geographical indication (GI) implies that products additionally to the designation of origin definition possess a reputation and other characteristics attributed to that geographical area. A geographical area may be a region, a specific place or in some cases, a county. Some well-known examples of GIs in the EU include Feta, Kalamata olives, Ouzo, Lübeck Marzipan, Nürnberger Lebkuchen, Pecorino Siciliano, Siracusa Lemon, Gorgonzola and Parmigiano Reggiano. The names of cheeses, sausages, fruits, olives, regional cakes, drinks and other agricultural products are protected under intellectual property rights of the EU in broader terms and therefore these commodities can only be given a specific name if they are produced in a particular geographical area. Consequently, producers are not allowed to label any products with words such as style, type or method in combination with the names of the protected goods or to use similar packaging designs, as they are treated as intellectual property rights.

Nonetheless, in most of the countries outside the EU, there are no laws to prohibit and prevent producers from manufacturing, labelling or packing products in a way to claim that they are the same as one of the EU's products protected under GIs. Therefore, to protect its producers, the EU seeks to pass these rules on and to obtain an exclusive right to use GIs in the FTAs with the third countries or specific stand-alone agreements on GI, such as the agreement with China. The EU negotiates GIs under intellectual property rights as a separate section of its FTAs. However, in multilateral negotiations the EU has failed to protect its GIs globally. Indeed, GIs is one of the most controversial intellectual property rights to negotiate, the EU being a principal supporter compared to the USA, Canada and New Zealand, who were against it.

In New Zealand, a framework for GIs was given by the Geographical Indications Act in 1994, although this has never passed into force. Subsequently, this act has undergone a change and in 2015 was replaced with the Geographical Indications (Wine and Spirits) Registration Bill, which is a system for wine and spirit GI registration (Ministry of Business, Innovation and Employment, 2015). At present, the Trade Mark Act 2002 (last amended in 2005) and the Fair-Trading Act of 1986 are the legal frameworks used for the protection of trademark for products and services. In addition, they provide a legal foundation for geographical terms to be

registered as a collective mark or certification. Therefore, GIs can be protected under the Trademark Regime. Currently, there is no a bilateral agreement on GIs between New Zealand and the EU. However, they have begun to negotiate a wine agreement that has not yet been concluded.

2.8 Conclusions

As discussed, there has been a long history of trade between the EU and New Zealand. As a part of this trading history, New Zealand has access to the EU market through preferential quotas for its high-quality beef, sheepmeat, butter and cheese. As New Zealand and the EU do not have a bilateral trade agreement and as they are both members of the WTO, apart from preferential quotas they trade on the MFN principle. Furthermore, New Zealand and the EU have signed a range of arrangements and agreements that contribute to the formal framework of the mutual relationship, give a baseline for future progress in negotiations and shape particular areas of common interests in bilateral cooperation. These concluded agreements show the level of like-mindedness and development in the relationship to this point and therefore could help to ensure a platform for high-level, quality FTA negotiations that run smoothly. In February 2016, a non-binding resolution was passed in the European Parliament in support of the EU commencing negotiations for a comprehensive FTA with New Zealand. This is seen as a bold step that might significantly boost trade and investment between the two parties.

As New Zealand's second largest trading partner in recent years, the EU is an important trading partner in goods and services. By comparison, in 2016 New Zealand was the 48th largest trading partner in goods to the EU. Traditionally, New Zealand largely exports agricultural products to the EU while manufactured goods mostly dominate EU's exports to New Zealand; thus, there is a clear differentiation in the type of products that dominate imports and exports between the two parties. In 2016, New Zealand's top exports to the EU were sheepmeat, wine, fresh fruit (including apples), wool, butter and dairy. Most importantly, the EU is the primary export destination for sheepmeat, which accounted for almost 50 percent of New Zealand's total exports, as well as kiwifruit, apples and pears. In the same year, the EU exported primarily industrial or mechanical goods such as motor vehicles, aircraft, medicaments, tractors, trucks and vans to New Zealand.

It appears from the analysis in this chapter that New Zealand and the EU face issues that may prove to be stumbling blocks for negotiations; in particular, trade in agricultural products. Agriculture is an important sector in both countries and both are net exporters of agricultural commodities. The New Zealand economy is profoundly reliant on the export of agricultural commodities. In 2015, the top three export commodities were dairy, meat and wood, amounting to 50 percent of total exports, with milk products alone accounting for around 30 percent of total exports. Furthermore, New Zealand is a small and open economy, dependent on international trade and market access to key trading partners. The EU provides a stable market for New Zealand's exporters. As New Zealand agriculture experiences minimal government intervention, it is market-oriented and measures such as export subsidies for agricultural goods do not exist. New Zealand has relatively low tariffs for most products, making market access easy for the EU into its market. In particular, New Zealand's tariffs on imported agricultural products are considered to be the lowest in the world and import quotas and licensing as a method of protectionism do not exist.

Conversely, in the EU agriculture is heavily protected and subsidised through the CAP. This chapter briefly elaborated on the specific objectives of the CAP and how it resulted in surpluses of food, making the EU a net exporter of food products and beverages. The most recent CAP reforms show a variety of support actions instituted over last five years. In addition, the EU has relatively high tariffs and other trade restrictions, especially for agricultural commodities. As New Zealand exports mainly agricultural goods, access to the EU market is currently limited.

The EU is a powerful player in international trade and success translates economic strength into trade power. The EU's importance as a trade power justifies New Zealand's efforts in maintaining and strengthening its relationships with the EU in order to benefit from their agreement. The analyses of the EU's trade policy highlight the challenges that New Zealand may face when trying to negotiate a trade deal with the EU. The EU's trade power comes from the power of its internal market and its forty-year experience in trade agreement negotiations. It appears from the discussion that the EU has had different motives for each FTA, which have shaped its different agreements from partner to partner. It should be noted that the majority of the EU's objectives are influenced by economic interests, with the aim of gaining market access and increasing exports of goods, capital and services. Other non-trade objectives include

adoption of standards and single market rules. Hence, the EU has the power to affect other states' policies and positions in return for access to the EU market. The EU uses its most comprehensive agreements as an example for future negotiations with a flexible approach to each new partner. The EU also seeks through FTAs to strengthen international rules, especially intellectual property, competition and safety standards. The EU's sectors that are the most likely to benefit through FTAs are services; therefore, it can be expected that the EU will strongly advocate for liberalisation of services with New Zealand.

It is important to note that agricultural lobbyists oppose the EU's FTAs and strongly push for agriculture to be protected within those agreements. As a significant exporter of agricultural products, New Zealand can expect that lobby groups will be very active during FTA negotiations. EU farmers fear that once agriculture is liberalised, New Zealand dairy and meat products will flood the EU market, though this is unlikely to happen as there has been a continuous decrease in New Zealand exports to the EU. In contrast, the main aim of New Zealand trade policy is to provide access for its exports to the main trading partners, eliminating trade barriers and facilitating free trade. Therefore, New Zealand will strongly advocate for liberalisation of the agricultural sector with the EU.

Chapter 3

European Union and New Zealand recent FTA strategies and their potential application to future bilateral negotiations

3.1 Introduction

The previous chapter explained in detail the European Union (EU) and New Zealand trade profiles, current trade relations, the importance of the agricultural sector in both regions and the barriers to trade. Challenges were also discussed that may prove to be stumbling blocks for negotiations; in particular, for trade in agricultural commodities.

This chapter provides an analysis of New Zealand and EU strategies in their recently concluded free trade agreement (FTA) with third parties, with a detailed consideration of agriculture. The main aim of the chapter is to outline challenges and obstacles faced in formulating their own FTA. This will assist in identifying the individual position of both countries during future FTA negotiations. The analysis investigates how agriculture was addressed in the concluded FTAs in order to better understand possible future approaches toward trade talks between the two parties. Furthermore, the chapter examines liberalisation schedules of particular agricultural products: meat of bovine and sheep, milk and cream, butter and dairy spreads, cheese and curd, kiwifruit and wine as the most significant exports from New Zealand and the most protected products within the EU.

3.2 New Zealand's negotiation strategy in its concluded FTAs[2]

The New Zealand economy is heavily dependent upon the export of agricultural products. The share of agricultural products in export has grown steadily over the last decade and reached close to 69 percent in 2014 (WTO, 2015c). New Zealand therefore has a strong incentive to gain free access for its agricultural goods on foreign markets. New Zealand was very active in World Trade Organisation (WTO) multilateral negations in trying to reduce high tariff barriers and agricultural subsidies. The Doha multilateral trade negotiations have progressed slowly and subsequently New Zealand sought to undertake bilateral and regional trade negotiations. At present, New Zealand has concluded FTAs with several countries and regions, as shown in Table 3.1.

Table 3.1: Current trade agreements between New Zealand and other countries

Trading partner	Name of the agreement	Year concluded
Australia	Australia-New Zealand Closer Economic Relationship	1983
Singapore	New Zealand-Singapore Closer Economic Partnership	2001
Thailand	New Zealand-Thailand Closer Economic Partnership	2005
Brunei Darussalam, Chile, Singapore	Trans-Pacific Strategic Economic Partnership (P4)	2006
China	New Zealand China Free Trade Agreement	2008
Malaysia	New Zealand-Malaysia Free Trade Agreement	2010
ASEAN and Australia	ASEAN, Australia and New Zealand FTA (AANZFTA)	2012
Hong Kong	New Zealand-Hong Kong and China Closer Economic Partnership (CEP)	2011
South Korea	New Zealand-South Korea Free Trade Agreement	2015

Sorce: Own compilation based on official New Zealand trade agreements.

New Zealand has some of the lowest tariffs on agricultural products in the world. The simple average applied most-favoured-nation (MFN) tariff is 1.7 percent (WTO, 2015a). There is a minimal government intervention for the agricultural sector; it is market-oriented and measures such as export subsidies for agricultural goods do not exist. The following section analyses how

[2] Material covered in this section "New Zealand's negotiation strategy in its concluded FTAs" (pages 42-50) has previously been published in Saunders, C., Saunders, J., McLellan, B., Obadovic, I., & Driver, T. (2016). *Modelling Agricultural Impacts of EU-NZ Trade Liberalisation*. AERU Research Report, Preliminary Draft Report. Lincoln University: Agribusiness and Economics Research Unit.

protectionist measures on agricultural products have been eliminated under the New Zealand FTAs with Australia, Singapore, Thailand, China, Malaysia, Hong Kong and South Korea. The Trans-Pacific Strategic Economic Partnership with Brunei Darussalam, Chile and Singapore and the agreement with the Association of Southeast Asian Nations (ASEAN) have not been analysed as they are not bilateral trade agreements. The trade data analysis covers particular agricultural products: meat of beef and sheep, milk and cream, butter and dairy spreads, cheese and curd, kiwifruit and wine.

3.2.1 New Zealand-Australia Closer Economic Relations (ANZCER)

New Zealand concluded negotiations towards its first FTA with Australia in 1965. Following this, the two countries committed to deepening their relationship by creating a single economic market, with talks towards this initiated in the 1970s. In 1983, a new agreement called New Zealand-Australia Closer Economic Relations (CER) came into force. Under this agreement, all tariffs and quantitative restrictions on the trade of goods were eliminated by 1990, five years before the CER tariff elimination schedule. Therefore, all goods that meet the CER rules of origin face no tariffs or quantitative restrictions (The Australia-New Zealand Closer Economic Relationship, 1982). The CER is considered to be one of the most comprehensive trade agreement in existence. It covers trade in goods, including all agricultural products, as well as harmonisation of food standards, services and investments.

3.2.2 New Zealand-Singapore Closer Economic Partnership (NZSCEP)

Negotiations towards a FTA between New Zealand and Singapore began in 1999 and took less than a year to conclude. In 2001, this agreement, known as the Agreement between New Zealand and Singapore on a Closer Economic Partnership, entered into force. All tariffs on goods made in Singapore or New Zealand were immediately eliminated. In addition, goods that met the rule of origin defined by this agreement could be traded duty-free. The agreement also outlined stipulations to prohibit export subsidies on all goods including agricultural products (The New Zealand-Singapore Closer Economic Partnership, 2001).

3.2.3 New Zealand-Thailand Closer Economic Partnership (NZTCEP)

In 2004, New Zealand and Thailand initiated negotiations towards a Closer Economic Partnership (CEP) agreement, which was enforced in 2005. As a result, New Zealand

eliminated 85 percent of tariffs on imports from Thailand, including all agricultural products such as meat and fish, dairy products, fruits, vegetables, nuts and wine. The remaining tariffs were progressively eliminated by 2015. Over a period of 10 years New Zealand also gradually eliminated tariffs on the most sensitive products such as textiles, footwear, clothing and carpets. Tariffs on less sensitive products such as whiteware, particular furniture items, paper, steel, iron products, aluminium products and automotive components were initially held at their original level before either falling to zero in 2010 or being phased out over a five year period. Conversely, when the CEP entered into force Thailand eliminated tariffs on more than half of New Zealand exports. All remaining tariffs and quotas are to be abolished by 2025.

The most sensitive sector for Thailand to negotiate was dairy, as around half of New Zealand's exports to Thailand fall into this category. Thailand has kept tariff quotas for some sensitive agricultural products, such as liquid milk and cream, skim milk powder, potatoes and onions, up to 2025. For fruit and vegetables (such as kiwifruit), most of the high tariffs (in the range of 30 to 40 percent) were instantly eliminated when the agreement entered into force. High tariffs on beef and sheepmeat (50 and 30 percent, respectively) were to be completely phased out over a period of 15 and five years, respectively. Furthermore, tariffs on wine (initially 60 percent) were reduced to 30 percent, before being phased out completely in 2015 (The New Zealand-Thailand Closer Economic Partnership, 2005).

3.2.4 New Zealand-China Free Trade Agreement (NZCFTA)

In 2008, New Zealand became the first developed country to conclude a FTA with China. After four years of negotiation beginning in 2004, the agreement was signed and entered into force, at which time New Zealand eliminated most of its tariffs on goods originating from China. The remaining barriers were phased out completely by 2016 (The New Zealand-China Free Trade Agreement [NZCFTA], 2008). The same pattern applied to the agricultural sector: the majority of tariffs were abolished in 2008 and the remainder were gradually reduced over a period of five years. All meat of bovine and sheep, milk and cream, butter and dairy spreads, cheese and curd and kiwifruit became duty-free when the agreement entered into force, with most other products becoming duty-free within five years. New Zealand protected its wine and beverage industry by eliminating tariffs on the goods over a five-year period.

In the category of meat and fish, tariffs on poultry, edible offal of poultry, rock lobsters and crabs were gradually phased out to zero by 2012. The same occurred in the dairy sector for tariffs on yoghurt and natural honey. Furthermore, tariffs on some fruit products (including cherries and lemon peel) and vegetables (including sweet corn, olives, cucumbers and gherkins, mushrooms, onions and mixed vegetables) were phased out over five years. The same occurred for preparations of these vegetables and fruits, as well as for coffee, margarine, coconut oil, sugar confectionery, chocolate and other food preparations including cocoa. In the milling industry, tariffs on remaining wheat products were also phased out over a period of five years, as well as tariffs on preparations of cereals, flour, starch and pastry cook products. Most of the tariffs on products under the miscellaneous edible preparations group (including yeasts, soy sauce and other, such as tomato ketchup, soups, broths and ice-cream) were phased out over five years (NZCFTA, 2008). New Zealand protected its wine and beverage industry but tariffs on all fruit juices and wine were progressively eliminated by 2012.

China was more protective towards its agricultural sector than New Zealand. Chinese dairy was considered to be an infant industry and therefore was protected the most. Tariffs on infant milk formula, casein and yoghurt were gradually removed over a period of five to six years (NZCFTA, 2008). A phase-out period of 10 years was applied to cheese, butter and liquid milk. The longest phase-out period (12 years) was applied to milk powder. For these products, a specific safeguard mechanism can be triggered in exceptional cases. Other products that China treated as sensitive were sheep and beef meat, edible offals and kiwifruit. A country-specific tariff quota was imposed upon New Zealand wool exports. Most other tariffs on agricultural products were gradually eliminated over a period of five years. Some agricultural commodities were excluded from the agreement and remain subject to MFN tariffs rates. The excluded products were durum wheat, maize seed, all types of rice, raw cane sugar and other sugars, soybean oil, curd palm oil, sunflower oil and some other oils (NZCFTA, 2008).

The trade data in Table 3.2 explains why New Zealand immediately eliminated most tariffs on its agricultural products in the FTA with China. China is a relatively large producer of beef and sheepmeat; however, it exported less than one percent of both products in 2000 and none were shipped to New Zealand (Food and Agriculture Organization of the United Nations Statistics Division [FAOSTAT], 2016).

Table 3.2: China's total production and exports of red meat and wine

	BEEF		SHEEP		WINE	
China	**2000**	**2013**	**2000**	**2013**	**2000**	**2013**
Total tonnes produced	4,651,944	6,408,200	1,478,000	2,081,000	1,050,000	1,700,000
Total tonnes exported	23,033	81,875	1,235	2,302	5,226	21,331
Export as a % of total tonnes produced	0.49%	1.27%	0.08%	0.11%	0.49%	1.25%

Source: Food and Agriculture Organization of the United Nations "FAOSTAT" Detailed Trade Matrix, various years and factors.

China is also a relatively large producer of milk and dairy products, as shown in Table 3.3. In 2000, China exported 6.73 percent of its total butter production, none of which was exported to New Zealand. Cheese exports were less than one percent in 2000 and 2013. Though China is a significant producer of agricultural products, almost all of its production is consumed domestically. It can therefore be suggested that the immediate and complete liberalisation of these products happened because they were no threat to New Zealand's domestic production.

Table 3.3: China's total production and exports of dairy products

	MILK		BUTTER		CHEESE	
China	**2000**	**2013**	**2000**	**2013**	**2000**	**2013**
Total tonnes produced	8,632,308	35,670,002	81,959	97,164	205,950	262,350
Total tonnes exported	------	------	5,519	1,345	1,711	610
Export as a % of total tonnes produced	------	------	6.73%	1.38%	0.83%	0.23%

Source: Food and Agriculture Organization of the United Nations "FAOSTAT" Detailed Trade Matrix, various years and factors.

According to the International Organization of Vine and Wine (2015), in 2014 China was ranked as the second-largest country in the world for its vineyard area. China is the eighth largest global wine producer because much of China's table grapes are used for dried fruits and tables grapes. With the rise of the middle social class, demand for wine is growing in China, leading to an increase in production. In 2013, China's production of wine was 1.7 billion tonnes, of which 1.25 percent was exported, none of it to New Zealand (FAOSTAT, 2016). The fact that China is one of the largest global producers of wine might be the reason why New Zealand gradually removed tariffs on its wine over five years and did not immediately liberalise its wine industry as under other agreements.

3.2.5 New Zealand-Malaysia Free Trade Agreement (NZMFTA)

Negotiations towards an agreement between New Zealand and Malaysia began in 2005. After four years an agreement was signed and came into force in 2010. New Zealand completely liberalised most of its agricultural products when the agreement was ratified. All meat of bovine and sheep, milk and cream, butter and dairy spreads, cheese and curd, kiwifruit and wine became duty-free in 2010 (The New Zealand-Malaysia Free Trade Agreement [NZMFTA], 2010). New Zealand applied longer phase-out periods for its sensitive products: tariffs on margarine and coconut were kept for five years; sugar confectionery products, chocolate and other food preparations containing cocoa were treated in the same way. New Zealand was also protective towards some pasta, sweet biscuits, soy sauce and nutmeg; tariffs on these products were reduced to five percent and were kept for five years (NZMFTA, 2010). Tariffs on pepper, waffles and wafers were phased out over a period of two years. New Zealand was very protective towards its sensitive sectors, including clothing, footwear, some textiles, carpets, most wooden furniture and some manufactured products; these products had the longest (five years) phase-out periods (NZMFTA, 2010).

Malaysia was very protective towards its agricultural sector. In the dairy industry, tariff rate quotas on liquid milk were introduced. The tariff quota on liquid milk is 2.1 million litres, with an annual quota volume rate increase of up to five percent (NZMFTA, 2010). Malaysia also introduced tariff quotas on pigs, pork, poultry and duck eggs. The remaining agricultural products were fully liberalised by 2016 (NZMFTA, 2010).

The trade data in Table 3.4 explains why New Zealand eliminated most of its tariffs on agricultural products when the agreement entered into force. Malaysia is a relatively small producer of beef. It exported 8.2 percent and 14.3 percent of its total production in 2000 and 2013, respectively, of which none was exported to New Zealand. Production and export of sheepmeat are minor, as is the production of milk. When the agreement came into force, Malaysia exported a total of 4,679 tonnes of butter, of which none was exported to New Zealand (FAOSTAT, 2016). Similarly, Malaysia is a small producer of cheese. A total of 241 tonnes of cheese were exported, of which 39 tonnes were exported to New Zealand in 2010 (FAOSTAT, 2016). It can therefore be suggested that the immediate and complete liberalisation of these products happened because there was no threat to New Zealand's production of the same goods.

Table 3.4: Malaysia's total production and exports

	BEEF		SHEEP		MILK		BUTTER		CHEESE	
Malaysia	**2000**	**2013**	**2000**	**2013**	**2000**	**2013**	**2000**	**2013**	**2000**	**2013**
Total tonnes produced	14,515	26,762	286	517	30,460	79,350	------	------	-----	-----
Total tonnes exported	1,199	3,830	25	20	------	------	1,346	1,248	115	130
Export as a % of total tonnes produced	8.2%	14.3%	8.7%	3.9%	------	------	------	-----	----	-----

Source: Food and Agriculture Organization of the United Nations "FAOSTAT" Detailed Trade Matrix, various years and factors.

3.2.6 The New Zealand-Hong Kong, China Closer Economic Partnership (NZHKCCEP)

New Zealand started to negotiate a FTA with Hong Kong before a FTA with China. After a long negotiation process of 10 years, the agreement was signed and entered into force in 2011. The Hong Kong market is duty-free and accessible for all countries, as its MFN tariffs on all imported products are zero (GovHK, 2016). During negotiations, the most difficult issue was to agree on and set robust rules of origin. New Zealand wanted to ensure that only Hong Kong products were legitimate to qualify to enter its market duty-free. New Zealand applied the same timetable for tariff phase-out on goods originating from Hong Kong as those in the FTA with China (The New Zealand-Hong Kong, China Closer Economic Partnership [NZHKCCEP], 2011). Tariffs on highly-traded clothing, footwear and textiles had the longest phase-out period, from 2011 to 2016. Tariffs on carpets, other clothing, footwear and textiles were eliminated by 2014. By 2012, tariffs on less-sensitive products were gradually eliminated (NZHKCCEP, 2011). The majority of tariffs were abolished when the agreement entered into force. Tariffs on the remaining agricultural products phased out in the same year as the tariffs within the FTA with China in order to mitigate the adjustment effects. New Zealand imposed phase-out tariff periods of up to five years on agricultural goods originating from China, while phase-out periods with Hong Kong were up two years.

Hong Kong is a very small producer of agricultural products. Farms are small in size and produce mainly leafy vegetables, poultry and pigs. According to the Government of Hong Kong (2016), two percent of vegetables, six percent of the pig meat and 95 percent of poultry consumed came from domestic production in 2015; local production complements supply

rather than competes with other suppliers. Therefore, as a very small agricultural producer Hong Kong is not a threat to New Zealand's agricultural sector. This is similar to the New Zealand FTA with Singapore, another city-state with comparable agricultural trade and production profile. New Zealand immediately removed all tariffs on agricultural products originating from Singapore when that agreement came into force (NZHKCCEP, 2001). Therefore, New Zealand's protectionism towards some agricultural products within a FTA with Hong Kong cannot be explained by production and trade data. A possible explanation for the same tariff treatment as within the New Zealand-China FTA may be the special status and relationship between Hong Kong and China. Hong Kong is an autonomous territory of China and the implication is that New Zealand may have put the same year on the complete tariff elimination for China and Hong Kong to ensure that Chinese products did not receive indirect entry to New Zealand. For New Zealand, negotiating rules of origin was difficult but necessary to ensure that only Hong Kong products legitimately qualify to enter its market duty-free.

3.2.7 New Zealand-South Korea Free Trade Agreement (NZKFTA)

New Zealand's most recent FTA is with South Korea. Negotiations towards an agreement began in 2009. After four years the agreement was signed and came into force in late 2015. New Zealand liberalised almost all agricultural products immediately after the agreement came into effect. Only a few products were treated as sensitive. The longest tariff phase-out period (seven years) was applied to nutmeg, coconut oil and its fractions. The tariff on margarine will phase out over a period of five years. The shortest tariff phase-out (three years) was imposed on sweet biscuits and soy sauce (The New Zealand-Korea Free Trade Agreement [NZKFTA], 2015). The agreement applied longer tariff phase-out periods for New Zealand-sensitive sectors such as clothing, footwear, some textiles and carpets. Tariffs on these products have a phase-out period of between three and seven years (NZKFTA, 2015).

In contrast, South Korea was very protective towards its agricultural sector because it imports dairy products, beef, lamb, kiwifruit and other agricultural goods. South Korea introduced tariff rate quotas with zero in-quota duty for butter, cheese and infant formula that will be eliminated over a period of 10 to 15 years (NZKFTA, 2015). A permanent tariff rate quota was introduced on milk. In the dairy sector, tariffs will be removed over a period of five to 15 years. Before the FTA, mussels (the main fishery export of New Zealand to South Korea) were subject to a 20

percent tariff; now they are subject to a permanent duty-free tariff rate quota. Before the agreement, the tariff on kiwifruit was 45 percent; this was reduced to six percent when the agreement came into force and in 2020 it will be eliminated. Tariffs on other fruits and vegetables will be removed over 10 years. A tariff of 40 percent on beef meat will phase out over 15 years and a tariff of 22 percent on sheepmeat will be eliminated over 10 years. Other meat products are subject to a phase-out periods of up to 15 years. Tariffs on wine were eliminated when the agreement came into force (NZKFTA, 2015).

As indicated in Table 3.5, South Korea is a small producer of butter, cheese and sheepmeat and very little or none of these products was exported. In 2009, at the same time as negotiations started, none of those products were exported to New Zealand. It can be assumed that the complete and immediate liberalisation happened because there was no threat to New Zealand. South Korea is a small producer and exporter of wine, in 2009 exporting a total of 106 tonnes, of which none was exported to New Zealand (FAOSTAT, 2016). This explains why wines were immediately liberalised. On the other hand, South Korea produces a relatively considerable amount of beef meat and milk. In 2009, a total of 2,504 tonnes of beef meat was exported, though none went to New Zealand. In the same year, South Korea exported 935 tonnes of milk, of which five tonnes were exported to New Zealand (FAOSTAT, 2016). South Korea is a significant producer of kiwifruit, with a total production of 11,802 tonnes in 2009; a total of one tonne of kiwifruit was exported, none of which was exported to New Zealand (FAOSTAT, 2016). However, Korean kiwifruit is counter-seasonal to kiwifruit in New Zealand and is therefore not a threat to New Zealand production.

Table 3.5: South Korea's total production and exports

	BEEF		SHEEP		MILK		BUTTER		CHEESE	
S KOREA	**2000**	**2015**	**2000**	**2015**	**2000**	**2015**	**2000**	**2015**	**2000**	**2015**
Total tonnes produced	305,860	345,390	2,770	1,400	2,252,800	2,190,510	3,810	6,130	14,980	26,980
Total tonnes exported	1,010	4,720	640	1	------	------	0	0	0.70	0
Export as a % of total tonnes produced	0.33%	1.36%	23.10%	0.07%	------	------	0%	0%	4.67%	0%

Source: Food and Agriculture Organization of the United Nations "FAOSTAT" Detailed Trade Matrix, various years and factors.

Table 3.6 shows the tariff elimination schedules for agricultural products in New Zealand's FTAs with Australia, Singapore, Thailand, China, Malaysia, Hong Kong and South Korea. New Zealand liberalised beef and sheepmeat, milk and cream, cheese and kiwifruit in each FTA immediately after the agreements entered into force and gradually removed tariffs on wine over five years in the FTA with China and over two years in the FTA with Hong Kong. In all other FTAs, the wine was immediately liberalised. New Zealand immediately liberalised almost all remaining agricultural products when the agreements entered into effect. In all FTAs, apart from Australia, Singapore and Thailand, a few agricultural commodities had longer tariff phase-outs of five to seven years, depending on the agreement. However, New Zealand has never excluded any agricultural product from liberalisation nor has it applied tariff rate quotas.

Table 3.6: New Zealand FTA tariff elimination schedules for agricultural products

Title of the agreement	Year concluded	Tariff elimination schedules for agricultural products
Australia-New Zealand CER	1983	All tariffs and quantitative restrictions were eliminated
New Zealand-Singapore Closer Economic Partnership	2001	All tariffs were eliminated
New Zealand-Thailand Closer Economic Partnership	2005	All tariffs were eliminated
New Zealand-China FTA	2008	The majority of tariffs were removed when the agreement was implemented
		Products subject to a five-year phase-out period: ➢ Meat and fish: meat and edible offal of poultry, rock lobsters and crabs ➢ Dairy sector: yoghurt and natural honey ➢ Fruits and vegetables: cherries, lemon peel, sweet corn, olives, cucumbers and gherkins, mushrooms, onions and mixed vegetables ➢ Coffee ➢ Margarine and coconut oil ➢ Sugar confectionery, chocolate and other food preparations counting cocoa ➢ Milling industry: wheat products and preparations of cereals, flour, starch and pastry cookie products ➢ Miscellaneous edible preparations: yeasts, soy sauce, tomato ketchup, soups, broths and ice-cream ➢ Wine and all fruit juices
New Zealand-Malaysia FTA	2010	The majority of tariffs were removed when the agreement was implemented
		Products subject to a five-year phase-out period: ➢ Margarine and coconut oil ➢ Sugar confectionery sector products, chocolate and other food preparations containing cocoa ➢ Some pasta, sweet biscuits, soya sauce and nutmeg Products subject to two-year phase-out period: ➢ Pepper, waffles and wafers
New Zealand-Hong Kong, China Closer Economic Partnership	2011	The majority of tariffs were removed when the agreement was implemented
		The remaining tariffs had the same treatment and were phased out in 2012 along with tariffs under the FTA with China
New Zealand-South Korea FTA	2015	The majority of tariffs were removed when the agreement was implemented
		Products subject to a seven-year phase-out period: ➢ Nutmeg ➢ Coconut oil and its fractions Product subject to a five-year phase-out period: ➢ Margarine Products subject to a three-year phase-out period: ➢ Sweet biscuits ➢ Soy sauce

Source: Compilation based on data sourced from published New Zealand's FTAs.

3.3 The European Union's negotiation strategy in its concluded FTAs

The EU has a number of preferential trade agreements. However, not all of them are FTAs; some are stabilisation agreements and others are association agreements with a trade component. For example, agreements with South Africa (Trade, Development and Cooperation Agreement, 2004), Mexico (Economic Partnership, Political Coordination and Cooperation Agreement, 2000) and Chile (Association Agreement, 2002) contain a trade component. They represent traditional FTAs and mostly focus on the liberalisation of trade in goods. The EU-South Korea FTA (2011) represents a "new generation" FTA in force. This agreement, apart from the liberalisation of goods, includes liberalisation of services and investment, provisions on intellectual property, competition, capital payments and sustainable development. The EU concluded trade agreements with Colombia and Peru (2012), Ecuador (2015), Singapore, Canada and Vietnam (2015), though these are yet not in force.

Agriculture is significantly protected and subsidised within the EU. Ad valorem tariffs are relatively high and non-ad valorem tariffs impose even higher protectionism. In 2014, the average applied MFN tariff on agricultural products was 14.4 percent (WTO, 2015a), eight times greater than that of New Zealand. The next section analyses how protectionist measures on agricultural products have been eliminated under the EU's concluded FTAs with South Africa, Mexico, Chile and South Korea. The analysis includes the FTA with Canada where the agreement has been ratified but is not yet in force. It is valuable to analyse this agreement as it is the EU's most recent FTA and because Canada is very similar to New Zealand in terms of colonial history, production and trade of agricultural products. The trade data analysis has been done for particular agricultural products: beef and sheep, milk and cream, butter and dairy spreads, cheese and curd, kiwifruit and wine. The aim was to understand how protectionist measures on agricultural products have been reduced or imposed under the EU's FTAs with those countries. It is helpful to examine the EU's FTAs concluded under two different communications: *Global Europe* (2006), focused on traditional FTAs with a more noticeable protectionism and *Trade, Growth and World Affairs* (2010), with a new approach towards new generation FTA. It should be noted that *Global Europe* (2006) introduced for the first-time the term "new generation" FTAs referring to the EU's competitiveness-driven new generation FTAs. Both communications, *Global Europe* (2006) and *Trade, Growth and World Affairs*

(2010), use the term new generation FTAs and both express the need to prioritise FTAs with growing economies and to compensate for potential FTAs amongst competitors. However, in the thesis new generation FTAs refers to agreements that apart from the liberalisation of goods, includes liberalisation of services and investment (e.g. The EU-South Korea FTA (2011)).

3.3.1 Analysis of the European Union's FTAs with South Africa, Mexico and Chile concluded under *Global Europe*

In 2006, the EU communicated a trade strategy called *Global Europe*. Under this communication, the EU concluded agreements with South Africa, Mexico and Chile. They mostly focus on the liberalisation of trade in goods and can be called traditional FTAs. The analysis by McLellan (2015) showed that the EU was very protective towards its agricultural products across the three FTAs, as shown in the EU's tariff elimination timetables and legal provisions in those FTAs. Across the three agreements, there are differences in tariff elimination schemes, but they also contain one similarity: some agricultural products, mostly cheeses and wines, were excluded from liberalisation because of their special status as geographical indications (GI) and protected denominations of origin (PDO) within the EU. The list of agricultural products protected as a GI or PDO is on the EU's Database of Origin and Registration. Those products are protected in all three FTAs and in that way are excluded from liberalisation (McLellan, 2015).

Under the Trade, Development and Cooperation Agreement, the FTA with South Africa (2002), all beef products were provisionally excluded from tariff removal and are to be periodically reviewed. In contrast, all duties, including compound tariffs on sheepmeat, were phased out over 10 years. In the dairy sector, milk and cream products in powder, granules or other solid forms were excluded from liberalisation. Tariffs on other milk and cream products in powder, granules or other solid forms under the harmonised system (HS) code 040299 were phased out over 10 years. Butter and dairy spreads were excluded, apart from two dairy spread classifications of HS 0405 2010 and HS 0405 2030, whereas ad valorem tariffs were removed and the agricultural component is left to apply (McLellan, 2015). Many kinds of cheese and curds were excluded from liberalisation; the remaining cheese and curd products were liberalised over a period of 10 years. Additionally, there is a list of cheeses that are subject to a duty-free tariff quota of 5,000 tonnes, with annual growth of five percent. The EU excluded

many fruits and vegetables, including some citrus, pears, apples, grapes, bananas, sweet corn and prepared tomatoes. The tariff on kiwifruit was removed over a period of 10 years. The EU similarly treated wines as it did cheese and curd products, with the majority of wines being excluded from liberalisation due to their special status as GIs. Five wines of HS 2204 30 were liberalised over 10 years with the specific clause that if the required entry price is not reached, the specific duty should be paid. The EU imposed a duty-free tariff quota of 32 million litres per year on few wines and the remainder were liberalised over 10 years (McLellan, 2015).

In the FTA with Mexico, the EU did not liberalise beef trade. The agreement did not set a schedule for liberalisation of beef products, though they are to be reviewed in future. Sheepmeat is to be progressively liberalised over a period of 10 years. In the dairy sector, all milk and cream products were excluded from liberalisation, as well as butter and dairy spreads, apart from two classifications of dairy spreads, HS 0405 2010 and HS 0405 2030 (McLellan, 2015). A list of cheese and curd goods were excluded due to their status as PDO or GI within the EU. The remaining cheese and curd products were provisionally excluded and may be reviewed. The EU excluded the majority of fruit and vegetables, including apples, grapes, strawberries, bananas, peas, beans, asparagus, sweet corn and olives. The tariff elimination schedule for kiwifruit was the same as with South Africa. In the wine sector, the EU excluded some wines due to their PDO and GI status within the EU. Tariffs on remaining wines were abolished over three years.

In the FTA with Chile, the EU reserved the right to provisionally exclude all beef products. Those provisions are subject to review every three to five years. However, this is not a guarantee that they will be liberalised in the future. The EU provided a duty-free tariff quota for an aggregate quantity of 1,000 tonnes for beef products under HS 0201 and HS 0202, subject to an increase of 10 percent of the original quantity every year (McLellan, 2015). The EU introduced a duty-free tariff quota of 2,000 tonnes of each HS classification within sheepmeat, with an increase of 10 percent per year of the initial quota. In the dairy sector, all milk and cream products were liberalised and all protectionist measures on butter and dairy spreads were eliminated. The EU included a list of cheese and curd goods that were excluded due to their status as PDO or GI; this list is the same for Mexico (McLellan, 2015). The remaining cheeses and curds under HS 0406 are subject to a duty-free tariff quota of 1,500 tonnes, with an annual

increase of five percent of original quota. The EU excluded some vegetables such as sweet corn, asparagus, manioc, beans, mushrooms and olives for the production of oil. The tariff on kiwifruit was removed over a period of seven years. The EU also excluded the majority of wines due to their status as PDO and GI. Five wines of HS 2204 30 were liberalised over 10 years as in the two other agreements. The remaining wines became duty-free over four years.

The EU treated agricultural products differently across all three FTAs. McLellan (2015) has analysed trade data in order to understand the reasons for this. Table 3.7 shows total production, total export in thousands of tonnes of beef and sheep meat in 2000 and 2015 and export as a percentage of total tonnes produced. Production data for beef meat shows that Mexico and South Africa produce and export a relatively large amount of beef meat, especially Mexico. In contrast, Chile produces on a smaller scale and its exports are minor. Mexico and South Africa could be a threat to EU beef production, which explains why the EU was more protective with those countries than with Chile. Another explanation for being more liberal towards Chile could be the Common Agricultural Policy (CAP) reforms in place at that time. The EU extended current milk production quotas and it was anticipated that it would need to import more beef meat because an increase in milk production would result in a reduction of beef production in the EU (McLellan, 2015).

Data for sheepmeat shows that the largest producer of sheepmeat amongst three countries is South Africa. Mexico and South Africa do not export sheepmeat, while Chile exported 24 percent of its total production in 2000 and 36 percent in 2015. In 2003, Chile exported 66 percent of its total exported tonnes of beef to the EU. It can be suggested that there was no threat to EU sheepmeat producers, as Chile is a small producer and exporter (McLellan, 2015). It should be mentioned that the EU has imposed import tariff quotas for sheep and goat meat since the Uruguay round. The country-specific tariff quota for Chile is 6,800 tonnes; the country-specific tariff quota for the remaining nations which do not have one is 320 tonnes (Commission Implementing Regulation, 2011). Specific compound tariffs apply within quotas. The EU eliminated the tariff on sheepmeat with South Africa and Mexico after 10 years, though their meat is still subject to a quota of 320 tonnes. Many other countries compete to fulfil this EU quota.

Table 3.7: Production and exports of carcasses in thousands of tonnes

	BEEF		SHEEP	
	2000	**2015**	**2000**	**2015**
CHILE				
Total production	226.41*	192.24	16.54	18.49
Total export	0.23	4.83	4.00	6.84
Export as a % of total production	0.10%	2.51%	24.18%	36.99%
SOUTH AFRICA				
Total production	521.91	884.01	150.37	166.82
Total export	13.47	62.17	0.06	2.30
Export as a % of total production	2.58%	7.03%	0.03%	1.37%
MEXICO				
Total production	1377.35	1844.10	33.39	59.81
Total export	276.25	314.69	0.06	0.02
Export as a % of total production	20.05%	17.06%	0.17%	0.03%
EUROPEAN UNION				
Total production	8530.50	7363.50	1288.32	949.99
Total export	665.51	301.07	11.67	78.05
Export as a % of total production	7.80%	4.08%	0.90%	8.21%

* Rounded down to 2d.p.
Source: McLellan, K. Bridgette. "Agricultural Protectionism within European Union Free Trade Agreements: A comparative analysis and the implications for an EU-NZ FTA" Internship Report, Canterbury University, 2015.

Table 3.8 shows total production, total export and export as a percentage of total tonnes of dairy products produced in 2000 and 2015. The EU was protective towards its dairy sector. Butter and dairy spreads were highly protected in FTAs, apart from the FTA with Chile. Though all three of the countries are small butter producers, Chile received preferential treatment for its butter and dairy spreads, an occurrence that trade data cannot explain. Chilean butter is not exported to the EU market, therefore it may be that the EU did not see Chile as a threat to its own butter production (McLellan, 2015). The same applies for cheese and curd products. In 2001, Chile exported one tonne of cheese to the United Kingdom (UK) alone, with a slight increase in 2006 when it exported 13 tonnes to both the UK and Germany. In 2013, Chilean exports of cheese to the EU dropped below one tonne. Therefore, there was a very little threat to the EU (McLellan, 2015). However, in general the EU was highly protective towards cheese and curd products and has excluded many kinds of cheese and curd products from all three FTAs.

Table 3.8: Production and exports of dairy products in thousands of tonnes

	MILK		BUTTER		CHEESE	
	2000	**2015**	**2000**	**2015**	**2000**	**2015**
CHILE						
Total production	2000.20*	2704.30	9.85	26.11	50.62	71.09
Total export	------	------	0.22	3.98	1.60	7.82
Export as a % of total production	------	------	2.23%	15.24%	3.16%	11%
SOUTH AFRICA						
Total production	2540.00	3712.68	9.42	14.30	35.33	46.42
Total export	------	------	1.45	4.44	1.75	3.98
Export as a % of total production	------	------	15.07%	31.04%	4.95%	8.57%
MEXICO						
Total production	9600.09	11478.6	15.5	16.85	133.5	174.38
Total export	------	------	0.06	1.5	0.5	2.5
Export as a % of total production	------	------	0.38%	8.9%	0.37%	1.43%
EUROPEAN UNION						
Total production	150454.93	161422.64	2200.09	2235.27	7819.34	10042.72
Total export	------	------	192.45	157.77	520.56	797.94
Export as a % of total production	------	------	8.74%	7.05%	6.65%	7.94%

* Rounded down to 2d.p.
Source: McLellan, K. Bridgette. "Agricultural Protectionism within European Union Free Trade Agreements: A comparative analysis and the implications for an EU-NZ FTA" Internship Report, Canterbury University, 2015.

The EU liberalised kiwifruit imports from South Africa and Mexico over a 10 year period, while kiwifruit from Chile was liberalised over seven years. Mexico and South Africa are relatively small exporters of kiwifruit: Mexico exported two and six tonnes in 2003 and 2011, respectively, none of which was exported to the EU market, while South Africa exported 1,332 tonnes in 2003, of which 84 percent went to the EU. In 2013, Chile was ranked the fourth largest global producer of kiwifruit after China, Italy and New Zealand, producing 255,758 tonnes (FAOSTAT, 2016). In 2003, Chile exported 68.3 percent of its total kiwifruit to the EU, decreasing to 61.43 percent in 2011. In 2013, Italy was the second top kiwifruit producer in the world, producing a total of 447,560 tonnes. Italy was Chile's top kiwifruit export destination in 2003 and 2011, taking 38 percent and 30 percent (respectively) of all Chilean exports to the EU (McLellan, 2015). In comparison, Mexico and South Africa are small exporters of kiwifruit and export none or very little to the EU market. However, they still were subject to a longer tariff phase-out period than Chile. Chile was subject to a shorter period of liberalisation, the reason being that Chilean production is counter-seasonal to EU production of kiwifruit. Another possible reason for the different treatment could be that Mexico and South Africa had access to

the EU Generalised Scheme of Preferences at that time. The EU reduced ad valorem tariffs on sensitive products by 3.5 percent for developing countries; in other words, the EU had already reduced its protectionism towards some sensitive agricultural products (including kiwifruit) before concluding the FTA with those countries (McLellan, 2015).

The EU was very protective of its wine industry. Most wines were excluded from liberalisation in the FTAs due to their special status within the EU as PDO or GI. The remaining wines were treated differently between countries (McLellan, 2015). According to the International Organization for Vine and Wine (2016), both Chile and South Africa are among the top 10 producers of wine worldwide. In 2000, Chilean wine production was 667,403 tonnes, with total exports of 402,351 tonnes, 42.9 percent of which was exported to the EU market. In 1999, the total South African production of wine was 796,841 tonnes, with total exports of 81,263 tonnes, 70.4 percent of which went to the EU. The EU is important for Chilean and South African exporters. Therefore, those countries were representing a significant threat to the EU producers of wine. It can be inferred that this is a reason why the EU sought for longer liberalisation periods with the two countries (McLellan, 2015). In contrast, Mexico is a small producer of wine, in 2000 producing 104,124 tonnes and exporting 1,579 tonnes, 60 percent of which was exported to the EU. In 2013, this decreased to 10.3 percent. This explains why Mexican wine received preferential treatment compared to Chile and South Africa: it represented less of a threat to the EU producers of wine

3.3.2 Analysis of *Trade, Growth and World Affairs* FTAs

In 2010, the EU communicated a trade strategy called *Trade, Growth and World Affairs* promoting the rejection of protectionism within its external trade policy. Fair trade conditions and an opening of markets were proposed. The communication announced the establishment of new generation FTAs that would cover a wider area of trade. The EU concluded such an agreement with South Korea in 2010. Apart from the liberalisation of goods, this FTA included liberalisation of services and investment, provisions on intellectual property, competition, capital payments and sustainable development. Under the same communication the EU also negotiated the Comprehensive Economic and Trade Agreement (CETA) with Canada. This agreement has been ratified but is not yet in force.

3.3.2.1 The European Union and South Korea FTA

With South Korea, the EU liberalised agricultural products over a period of five years. When the agreement came into force, the EU eliminated all customs duties on sheepmeat, butter and dairy spreads, cheese and curd products and wine (McLellan, 2015). Tariffs on beef meat, milk and cream products and kiwifruit were phased out over five years. The FTA included a chapter for the protection and recognition of GIs under intellectual property rights. Listed GI products are excluded from liberalisation, despite the immediate and complete tariff liberalisation of cheeses, curds and wines. The same products had been protected and excluded under FTAs with Chile, Mexico and South Africa. Consequently, the new generation FTAs reserved the same level of protectionism on these products (McLellan, 2015).

As indicated in `Table 3.9, South Korea is a small producer of butter, cheese and sheepmeat and very little or none of these products were exported. In 2009, the same year negotiations started with the EU, none of these products was exported to the EU. It is therefore assumed that the complete and immediate liberalisation occurred because there was no threat to EU producers. South Korea is a small producer and exporter of wine, exporting a total of 452 tonnes in 2011, of which none was exported to the EU (FAOSTAT, 2016). This explains why wines were immediately liberalised.

In contrast, South Korea produces a relatively considerable amount of beef and milk and the EU protected those products the most. Korean beef and milk were subject to a tariff phase-out period of five years. In 2011, South Korea exported a total amount of 3,581 tonnes of beef, though none was exported to the EU market. The EU remained protective towards the beef sector despite this. Milk was treated in same way, even though in 2011 none of South Korea's 220 tonnes exported came to the EU market (FAOSTAT, 2016).

South Korea is a significant producer of kiwifruit, with a total production of 10,062 tonnes in 2011. In the same year, South Korea exported a total of one tonne of kiwifruit, none of which was exported to the EU. However, the tariff on kiwifruit was gradually eliminated over five years.

`Table 3.9: South Korea's total production and exports

	BEEF		SHEEP		MILK		BUTTER		CHEESE	
SOUTH KOREA	**2000**	**2015**	**2000**	**2015**	**2000**	**2015**	**2000**	**2015**	**2000**	**2015**
Total tonnes produced	305,860	345,390	2,770	1,400	2,252,800	2,190,510	3,810	6,130	14,980	26,980
Total tonnes exported	1,010	4,720	640	1	------	------	0	0	0.70	0
Export as a % of total tonnes produced	0.33%	1.36%	23.10%	0.07%	------	------	0%	0%	4.67%	0%

Source: Food and Agriculture Organization of the United Nations "FAOSTAT" Detailed Trade Matrix, various years and factors.

3.3.2.2 The European Union-Canada Comprehensive Economic and Trade Agreement (CETA)

The CETA was ratified in 2017 but is not yet binding under international law. When the agreement comes into force, the EU will completely eliminate all customs duties including quotas on dairy products. This includes milk and cream products, butter and dairy spread. Tariffs on sheepmeat, cheese and kiwifruit will also be immediately removed. The agreement provides for substantial liberalisation of beef products by eliminating both ad valorem and specific tariffs imposed under the multilateral system. Instead, beef products originating in Canada in categories HS 0201 and 0202 will be subject to a tariff quota under the agreement. The EU proposed a total duty-free importation of an aggregate quantity of beef and veal of 50,000 tonnes of carcass weight. This includes 35,000 tonnes carcass weight for fresh, chilled product and 15,000 tonnes of carcass weight for frozen or other beef and veal products (European Commission 2014, p. 234-236). This amount would be reached in the sixth year of the agreement being in force and would not be subject to further increase. Any quantity above the quota limit would be subject to the applied MFN tariff rate. In addition, the EU's existing WTO tariff quota for Canadian high-quality fresh chilled and frozen bovine meat of 11,500 tonnes will be kept with the immediate removal of the current in-quota duty of 20 percent. Canadian bison meat will immediately gain duty-free quota access of 3,000 tonnes carcass weight with no increase in subsequent years. It should be noted that within the CETA the EU has stayed consistent with its ban on beef produced with the use of growth hormones. Regarding

wine, the current Canada-EU Wine and Spirits Agreement (2004) was incorporated into the new agreement.

Within the intellectual property rights chapter of the CETA there is a section on the protection and recognition of GIs. The listed GIs are excluded from trade liberalisation, despite the immediate and complete tariff liberalisation of cheeses and other agricultural products. The agreement sets out the principles for a mutual recognition of agricultural and food products protected using GIs. Wines and spirits are not included, as they are covered by the separate EU-Canada agreement on trade in wines and spirits (2004). The annexes of the agreement contain the list of the GIs to be protected by both parties. The list of the EU GI contains 173 product names (O'Connor 2015). In addition, the EU agreed for the first time that some of these products should have different levels of protection. The reason for this is that in Canada, some of the products are considered to be generic. Exception was made for five kinds of cheese: Asiago, Feta, Fontina, Gorgonzola and Munster. Canadian producers are not prevented from the use of their names if they are accompanied by terms "kind," "type," "style," "imitation" or "the like" and by an indication of the true origin. The EU also agreed that Canadian manufacturers who used these names before October 2013 would be free to keep using the same (European Commission, 2014). On the other hand, the list of Canadian GIs is empty.

Under the CETA, the EU protected only agricultural products and foodstuffs. The agreement does not allow a registration of names for products that originate from primary agricultural manufacturing such as wool, flax, cotton, leather, fur and feathers, despite the fact that the EU allows the registration of these products or non-agricultural products as GIs within the EU. In defining the EU's GIs, the core parts of the definition are "essentially attributable" and "essentially or exclusively due" testing whether a name can be considered a geographical indication (Council Regulation, 2006). On the other hand, Canada has legal frameworks for the protection of trademarks of products and services. Trademark laws provide a legal base for GIs to be registered, but there is no administrative examination that confirms certain qualities of the product are principally attributed to its geographical origin. This inclusion of the test was accepted under the CETA (O'Conner, 2015).

As indicated in Table 3.10, Canada is a very small producer of sheepmeat and butter and a relatively small producer of cheese. In 2015, Canada exported a total of 240 tonnes of

sheepmeat, 40 tonnes of butter and 10,960 tonnes of cheese. Furthermore, in 2013 Canada exported a total of 4,200 tonnes of sheepmeat, of which four tonnes was exported to the EU. In the same year, Canada exported a total of 3,534 tonnes of butter, of which 290 tonnes were exported to the EU. In 2013 a total of 9,689 tonnes of cheese were exported, of which 678 tonnes were shipped to the EU (FAOSTAT, 2016). Canada is also a small producer of kiwifruit. In 2013, it produced a total of 75 tonnes, of which seven tonnes were exported to the EU (FAOSTAT, 2016). It can therefore be assumed that the EU proposed immediate and complete liberalisation of those products because there was a very little threat to its own domestic farmers of the same products. Compared to kiwifruit, sheepmeat, butter and cheese, Canada produces a relatively significant amount of beef, as shown in Table 3.10. In 2015, Canada produced a total of 1,354,330 tonnes of beef meat, of which 55.14 percent was exported (FAOSTAT, 2016). In 2013, Canada exported a total of 235,392 tonnes of beef meat, of which 829 tonnes were exported to the EU market. These numbers suggest why the EU was the most protective towards the beef industry during negotiations and why this product will be subject to quotas.

Table 3.10: Canada's total production and exports in thousands of tonnes

	BEEF		**SHEEP**		**MILK**		**BUTTER**		**CHEESE**	
CANADA	**2000**	**2015**	**2000**	**2015**	**2000**	**2015**	**2000**	**2015**	**2000**	**2015**
Total production	1,263.44	1,354.33	12.54	16.45	8,161.00	9,151.74	83.13	87.41	359.75	393.43
Total export	394.17	746.83	0.38	0.24	------	------	6.71	0.04	17.21	10.96
Export as a % of total production	31.20%	55.14%	3.03%	1.46%	------	------	8.07%	0.05%	4.78%	2.76%

Source: OECD-FAO Agricultural Outlook 2015-2024, by commodity. Various years.

Table 3.11 shows the tariff elimination schedules for analysed agricultural products in the EU's FTAs with South Africa, Mexico, Chile, South Korea and Canada. It is evident from the table that the EU applied a different pattern on the liberalisation of the same agricultural products across the five FTAs analysed. It can be concluded that the EU did not apply a consistent approach regarding agriculture across all FTAs.

Table 3.11: European Union FTA tariff elimination schedules for agricultural products

Product/ FTA partner	Beef meat	Sheepmeat	Dairy products	Kiwifruit	Wine
South Africa (2000)	Provisionally excluded	10 years	Excluded	10 years	10 years
Mexico (2000)	Provisionally excluded	10 years	Excluded	10 years	3 years
Chile (2003)	Duty-free tariff quota	Duty-free tariff quota	Duty-free tariff quota for cheese	7 years	4-10 years
South Korea (2011)	5 years	✓	5 years	5 years	✓
Canada (2017)	Duty-free tariff quota	✓	✓	✓	Incorporate the existing agreement

Source: Compilation based on data sourced from published the EU FTAs.

3.4 The potential application of European Union and New Zealand recent FTA strategies to bilateral negotiations

Based on the analysis of New Zealand's existing FTAs it is very likely that New Zealand will not be protective towards its agricultural sector in formulating an FTA with the EU. New Zealand has immediately liberalised beef and sheepmeat, milk and cream, cheese and kiwifruit in each of its FTAs after the agreements came into force and gradually removed tariffs on wine over five years in its FTA with China and over two years in its FTA with Hong Kong. In all other FTAs, wine was immediately liberalised. All remaining agricultural products were liberalised when the agreements entered into force. In all FTAs, apart from those with Australia, Singapore and Thailand, there were few agricultural commodities with a tariff phase-out period of two to seven years, depending on the agreement. However, New Zealand has never excluded any agricultural product from liberalisation, nor has it applied tariff rate quotas.

The EU is a large producer and exporter of agricultural products. However, exports of those goods to New Zealand are marginal: less than one percent of each (FAOSTAT, 2016). Therefore, there is very little threat to New Zealand's agricultural producers. In addition, tariffs on those products are relatively low. In 2014, New Zealand's average applied MFN tariff rate on agricultural commodities was 1.7 percent (WTO, 2015a). It can therefore be assumed that

the complete elimination of these tariffs would not drastically stimulate an increase in EU exports to the New Zealand market.

Compared to the EU, China is a larger producer of most agricultural products, but almost all is for domestic consumption. In 2013, China exported no agricultural products to New Zealand (FAOSTAT, 2016). It can therefore be suggested that New Zealand immediately and completely liberalised these products because there was no threat to its own production of the same goods. China is the eighth largest global wine producer, but only 1.25 percent was exported, of which none exported to New Zealand (FAOSTAT, 2016). The fact that China is one of the largest global wine producer is may be why New Zealand was protective towards its wine industry. In 2013, the EU produced a total of 14,310,120 tonnes of wine, almost eight times more than China. In the same year, the EU exported 46 percent of its total production, of which 3,550 tonnes went to New Zealand (FAOSTAT, 2016). On this basis, it can be suggested that within the FTA New Zealand may wish to apply five years' gradual reduction of tariffs on its wine.

Australia produces less of those products than the EU, but the percentage of exports in production is similar to the EU's pattern of exports (FAOSTAT, 2016). In 1983, Australia and New Zealand formed a single economic market, which exists at a higher level of economic integration than an FTA. Australia is therefore not a relevant example for analysis regarding the EU and New Zealand FTA.

Based on the analysis of the EU's strategies in its five existing FTAs, it can be suggested that the EU will maintain elements of protectionism within an FTA with New Zealand. The EU advocated the rejection of protectionism and fair trading conditions within its trade agreements concluded under the Global Europe (2006) and the Trade, Growth and World Affairs (2010) communications; however, analysis showed that the EU imposed a relatively high level of protectionism within the three traditional FTAs concluded with Chile, South Africa and Mexico prior 2010. In 2010, the Trade, Growth and World Affairs communication described the establishment of new generation FTAs that would cover wider areas of trade. However, the EU has not yet completely liberalised agricultural products within its FTAs with South Korea and Canada: the agreement with South Korea completely liberalised all agricultural commodities over a period of five years while the CETA excluded some agricultural products from the

liberalisation. All remaining agricultural products will be immediately or progressively liberalised through a transitional period of up to seven years. Products such as shrimp, cod, wheat, sweet corn and beef would be subject to duty-free quotas. However, both FTAs include a section for the protection and recognition of GI under the intellectual property right chapters. Listed GI products are excluded from liberalisation, despite the immediate and complete tariff liberalisation of cheeses, curds and wines. The same products had been protected and excluded under the traditional three FTAs. Consequently, the new generation of FTAs reserved the same level of the protectionism on those products.

Based on the trade data analysis it can be suggested that there is a relationship between the trade patterns and liberalisation of certain agricultural products. The EU applied a different pattern to the liberalisation of the same agricultural products across the five FTAs analysed. As discussed in the previous section, the EU liberalised products that were not a threat to its domestic commodities and protected the one that was a threat to its farmers. The EU does not use a single consistent approach regarding agriculture; therefore, it is challenging to compare the existing FTAs and form implications for the EU and New Zealand FTA.

New Zealand is a significant exporter of agricultural products. In 2013, more than 70 percent of its entire production of beef, sheep, butter, cheese, kiwifruit and wine were exported (FAOSTAT, 2016). New Zealand is a larger producer of agricultural products than South Korea and a larger producer of sheepmeat, butter and kiwifruit than Canada. On this basis, without taking into consideration any other factors, it can be suggested that the FTA with New Zealand will contain more protectionism than the FTAs with South Korea and Canada. In Contrast, New Zealand would seek a higher level of liberalisation as the agricultural sector is essential to its economy. Through quotas, New Zealand already has preferential access for its high-quality beef, sheepmeat, cheese and butter to the EU market.

New Zealand holds a specific tariff rate quota for high-quality beef granted during the General Agreement on Tariffs and Trade (GATT) Uruguay Round. A specific quota right is 1,300 tonnes by product weight (Beef and Lamb New Zealand, 2013). In quota, ad valorem tariff of 20 percent applies. Apart from this, New Zealand's export of frozen beef is treated under the EU MFN quota, which is 53,000 tonnes within 20 percent of ad valorem tariff (Commission Implementing Regulation (EU), 2001). Since the Uruguay Round the EU has kept high

protectionism over its beef and within its FTAs. The EU introduced a duty-free quota of 1,000 tonnes of high-quality beef as part of the trade agreement with Chile. New Zealand, however, already has a larger quota despite not having a trade agreement with the EU. Furthermore, the CETA maintained the EU's existing WTO tariff quota for Canadian high-quality fresh chilled and frozen bovine meat of 11,500 tonnes with the immediate removal of current in-quota duty of 20 percent. Therefore, New Zealand may expect that its specific quota will remain, with the immediate removal of the ad valorem tariff of 20 percent. In addition, the EU gave Canada a total duty-free quota for beef and veal of 50,000 tonnes. This quota will be reached gradually over a period of six years and will not be subject to further increase (European Commission, 2014, p 234-236).

In 2015, Canada produced a total of 1,354,330 tonnes of beef meat, of which 55.14 percent was exported (FAOSTAT, 2016). In the same year, New Zealand produced 636,610 tonnes, of which 83.73 percent was exported (FAOSTAT, 2016). In 2013, Canada exported 829 tonnes to the EU market and did not meet the existing quota. In the same year, New Zealand exported 11,280 tonnes of beef meat to the EU (FAOSTAT, 2016). Consequently, New Zealand may be able to gain additional quotas for its fresh and chilled beef as well as for frozen or other beef and veal products. However, one of the major disputes between the EU and Canada is the fact that Canada does not ban beef produced with growth hormones and the CETA will not lift the EU's long-standing ban on beef produced with the use of such hormones. Since Canadian production of beef does not match the EU standards, it is very unlikely that Canada will meet the quotas.

The annual country-specific quota for New Zealand sheep and goat meat accounts for 228,254 tonnes at zero duty (Commission Implementing Regulation (EU), 2011; New Zealand Meat Board, 2016). As depicted in Table 3.12, New Zealand did not utilise its quota between 2008 and 2012. The fall in New Zealand exports of sheep and goat meat to the EU market can be explained by weaker demand in the EU and increased demand in Asia. A significant increase in New Zealand exports is not expected in coming years.

Table 3.12: New Zealand usage of the European Union sheep and goat meat quota between 2008 and 2012

	2008	2009	2010	2011	2012	Quota volume in tonnes
New Zealand exported tonnes to the EU	189,118	184,641	163,758	148,457	130,512	228,254
Quota usage in percentage	82.85%	80.89%	71.74%	65.04%	57.18%	100%

Source: Source: Food and Agriculture Organization of the United Nations "FAOSTAT" Detailed Trade Matrix, various years and factors.

The EU introduced a tariff quota sheepmeat of 2,000 tonnes per year within its trade agreement with Chile, with an increase of 10 percent each year on the original duty. The new generation of EU FTAs did not provide high protectionism on sheepmeat. The EU did not impose protectionism on South Korean sheepmeat because South Korea is a very small producer. The CETA will provide a complete liberalisation of sheepmeat when the agreement enters into force. Canada is, however, a very small producer of sheepmeat. Compared with the other five EU trade partners analysed, New Zealand is the largest producer of sheepmeat. Therefore, it can be expected that the EU would be protective towards its sheepmeat industry. However, even if the EU FTA removed the country-specific quota and completely liberalised sheepmeat trade with New Zealand, it is very unlikely that New Zealand exports would sharply increase and overcome the current quota.

New Zealand cheese and butter enter the EU market under the WTO country-specific tariff rate quotas. Currently, the annual quota volume for butter is 74,693 metric tonnes and the in-quota tariff is €70 per 100 kilograms. Before 2007, New Zealand fulfilled this quota. However, in the last 10 years the butter quota fulfilment was less than 50 percent and the export of butter has been in decline. In 2015, New Zealand exported its lowest quantity of butter: just 8,000 tonnes, or 10 percent of the current quota, as indicated in Table 3.13.

Table 3.13: New Zealand usage of the European Union butter quota in last 10 years

	2006	2008	2010	2012	2014	2015	Quota volume in tonnes
New Zealand exported tonnes to the EU	81,464	51,911	31,368	32,907	35,684	8,000	74,693
Quota usage in percentage	109%	69%	41%	44%	47%	10%	100%

Source: Eurostat,various years and factors.

There are two country-specific tariff rate quotas for New Zealand cheese. The quota for cheese for processing is 4,000 tonnes, while the quota for whole cheddar cheeses is 7,000 tonnes. In total, a combined volume of 11,000 metric tonnes per year is allowed and the in-quota tariff rate is €17.06 per 100 kilograms each (Commission Implementing Regulation (EU), 2013). As shown in Table 3.14, New Zealand exports of processing cheese to the EU began sharply declining and for last 10 years, the quota has not been fulfilled. This trend can be explained by the fact that demand in the EU is weakening for processing cheese and that the out-quota tariff is €835 per 1,000 kilograms, almost five times higher than the in-quota tariff.

Table 3.14: New Zealand usage of cheese for processing quota in last 10 years

	2006	2008	2010	2012	2014	2015	Quota volume in tonnes
New Zealand exported tonnes to the EU	10,950	4,106	3,419	1,312	2,629	481	4,000
Quota usage in percentage	273%	102%	85%	32%	65%	12%	100%

Source: Eurostat, various years and factors.

Table 3.15 shows that exports of cheddar cheese to the EU market have declined markedly since 2006. New Zealand used to export almost double the current quota. The cheese shipped over quota is exported under the EU overall cheddar quota and it is subject to the in-quota tariff of €210 per 1,000 kilograms.

Table 3.15: New Zealand usage of the European Union whole cheddar cheese quota in last 10 years

	2006	2008	2010	2012	2014	2015	Quota volume in tonnes
New Zealand exported tonnes to the EU	19,274	13,215	16,088	14,157	8,139	4,827	7,000
Quota usage in percentage	275%	188%	229%	202%	116%	68%	100%

Source: Eurostat,various years and factors.

Table 3.16 shows the total export of cheese as a sum of processing and cheddar cheese to the EU and the total quota usage in percentage.

Table 3.16: New Zealand usage of the European Union total cheese quota in last 10 years

	2006	2008	2010	2012	2014	2015	Quota volume in tonnes
New Zealand exported tonnes to the EU	30,225	17,321	19,508	15,469	10,768	5,309	11,000
Quota usage in percentage	274%	157%	177%	140%	97%	48%	100%

Source: Eurostat,various years and factors.

The EU removed all trade barriers to butter within its FTAs with Chile, South Korea and Canada, except in a specific component of the compound tariff for Chilean butter. Chile and South Korea are small producers of butter; Canada has greater production, but almost all is consumed domestically. New Zealand is a large producer and exporter of butter compared to these countries; therefore, it is difficult to make conclusions about a New Zealand-EU FTA based on these others.

Compared with Chile, Mexico, South Africa and South Korea, New Zealand is larger producer and exporter of cheese. Canada is a larger producer of cheese than New Zealand, but its total export volume is smaller than New Zealand's exports to the EU alone. The EU will eliminate all customs duties (including quotas) on dairy products imported from Canada; this includes milk and cream products, butter and dairy spreads. In its FTA with Chile, the EU introduced a tariff quota for cheese, that being 1,500 tonnes of cheese per year, with full liberalisation after four years. However, all of the EU agreements have a chapter for protection and recognition of GI under intellectual property rights. The listed GI products are excluded from liberalisation,

despite the immediate and complete tariff liberalisation of cheeses and other agricultural products. It is likely that New Zealand would be treated similarly.

The EU was less protective towards some GIs under the CETA. The reason for this is that some of the products are considered generic in Canada. An exception was made for five kinds of cheese. The EU agreed that the Canadian manufacturers who used the names of the five listed kinds of cheese before October 2013 are free to keep using the name. This agreement on Asiago, Feta, Fontina, Gorgonzola and Munster may suggest what New Zealand can expect to reach in future negotiations with the EU, as some GIs are considered to be specific in the EU while the same is considered to be generic in New Zealand.

It is also important to consider the possible effects of recent CAP reforms, in particular the removal of all production restrictions on the volume of dairy and wine, because this will likely influence EU and New Zealand FTA negotiations. In April 2015, milk production quotas were abolished (European Commission: Agriculture and Rural Development, 2015). This has increased competition in the EU internal market and several European countries have already announced their willingness to increase milk production (Saunders et al., 2016a). However, the increased production of milk has increased competition (including for New Zealand producers) and lowered the world price for milk.

New Zealand kiwifruit faces a tariff of 8.5 percent when it enters the EU market. New Zealand is the largest producer of kiwifruit compared to the EU's other FTA partners analysed. In 2013, New Zealand was the third largest producer globally, followed by Chile (FAOSTAT). Italy was the second largest producer in the world in the same year. However, New Zealand and Chile are counter-seasonal producers to Europe, so it could be suggested that New Zealand would be treated similarly to Chile, with whom the EU gradually (over seven years) liberalised kiwifruit trade.

In regard to wine, the EU excluded specific wines across all of the analysed FTAs because of their status as GI under the chapter of intellectual property rights. The EU liberalised wine over 10 years with South Africa and Chile and over three years with Mexico. In comparison to Chile and South Africa, New Zealand is a smaller wine producer but a larger producer than Mexico. Therefore, New Zealand may expect a gradual phase-out of tariffs on wine for a period not shorter than three years. The EU immediately liberalised wine within its FTA with South Korea

because that country is a very small producer. The CETA incorporates the current Canada-EU Wine and Spirits Agreement into the FTA.

The EU protected its agricultural industry by restricting liberalisation of its products within the tariff elimination schedules and/or by excluding them from the agreements. The analysis indicates that the EU was more protective towards its agricultural commodities within its traditional FTAs than within the new generation of FTAs with South Korea and Canada. The analysis and comparison between the EU's FTAs may suggest how New Zealand agricultural products will be treated, particularly when considering the agreements with Chile and Canada given their relative similarity in production patterns to New Zealand. Furthermore, the EU did not use a consistent approach regarding agriculture in its FTAs. Therefore, it is challenging to compare existing FTAs and make inferences for the EU and New Zealand FTA.

3.5 Conclusion

Based on New Zealand's FTAs, it can be seen that this country immediately liberalised the products analysed in this research in each of the agreements as they entered into force. New Zealand gradually removed tariffs on wine over five years in the FTA with China and over two years in its FTA with Hong Kong. In all other FTAs, wine was immediately liberalised. New Zealand has never excluded any agricultural product from liberalisation, nor has it applied tariff rate quotas.

The EU has been shown to protect its agricultural industry by restricting liberalisation of its products within tariff elimination schedules and/or by excluding them from its five FTAs. The analysis indicates that the EU was more protective towards its agricultural commodities within its traditional FTAs than within the new generation of FTAs with South Korea and Canada. The EU applied different patterns of liberalisation on the same agricultural products across the five FTAs analysed. Therefore, there is a relationship between the trade patterns and the liberalisation of certain agricultural products: the EU liberalised products that were not a threat to its domestic producers and protected those that posed a threat to its farmers.

Based on the analysis of this chapter, different scenarios will be developed to simulate the economic effects of the FTA. The scenarios will assume different bilateral liberalisation levels in agricultural commodities.

Chapter 4
Theoretical background

4.1 Introduction

This chapter focuses on the development of international trade theories and presumed gains from free trade while addressing commonly used trade restrictions and their impact on trade flows. The chapter examines why countries trade, how they can benefit from free trade and why governments use trade restrictions despite the argument that free trade is beneficial for countries and increases their welfare. Governments use a different set of rules, laws and regulations (called trade policy) to influence exports, imports and stimulate the economic growth. Therefore, it is essential to understand the rationale behind restrictive trade policies and how they operate, particularly those that relate to agriculture. The final section of the chapter examines theories of regional trade integration and the economic effects of deep integration, trade creation and trade diversion.

4.2 An overview of international trade theories

According to Krugman, Obstfeld and Melitz (2012), countries engage in international trade for two main reasons. Firstly, countries trade because they differ from each other regarding resource endowments. These resources can be natural resources, labour, capital and technology. Secondly, states trade to achieve economies of scale in production. That means, if each country produces a limited range of products, these can be produced on a larger scale and hence more efficiently than trying to produce everything. Consequently, countries can benefit from free trade by specialising in the production of products in which they have a comparative advantage and trade some of these for goods and services that would be made at relatively higher costs within the home country. Trade theories explain why countries trade and how they may gain from trade.

4.2.1 Mercantilism

After the collapse of a medieval feudal organisation of the economy in European countries between the fifteenth and the eighteenth centuries, a system of new policies emerged with the aim of creating powerful and centralised nation-states (Negishi, 2014). Mercantilists introduced such policies and were the first to attribute much importance to foreign trade. Those policies were very diverse and heterogeneous, so it is challenging to call it a "school" or "scientific theory".

> Mercantilism was neither a scientific school nor a scientific theory - there were then no schools at all in our sense of the word - and we distort the picture if we seek already in this period what was, in fact, the consequence of a specialised discipline after it had properly constituted itself. (Shumpeter, 1996, p.39)

The mercantilist period overlapped with the use of minted gold and silver coins as principal means of payment (Haberler, 1936). The mercantilists' philosophy intended to create an economically wealthy and politically powerful state with the trade balance surplus (the value of exports must surpass the value of imports). They were in favour of government intervention by promoting exports and restricting imports to protect the merchant class (Prekajac, 2008). This explains why some countries at that time intervened to promote exports and restrict imports. Furthermore, mercantilists believed that a country's wealth is equal to the volume of precious metals (such as silver and gold) that the country possesses (Smith, 1776). There are three ways for a country to increase its stock of gold: increase exploitation of mines, conquer new colonies or achieve a trade balance surplus (Prekajac, 2008). Therefore, the excess of exports was changed into gold and the relationship between trade balance and movement of gold and silver was established. In addition, the theory implies that a state could only gain from trade at the expense of another, since it is impossible for all trading countries to have an export surplus, as trade is seen as a "zero-sum game" (Grimwade, 2000).

During the European expansion period from about 1500 to 1800, European countries began to conquer new territories in Africa, Asia and South America, searching for gold, spices, slaves, rubber and other raw materials. Thomas Man, a director of the East India Company, made policy recommendations that aimed to expand industrial output, using raw materials for exports and expanding the "carrying trade" by reselling the products bought from the colonies to other

countries (Borkakoti, 1998). Therefore, mercantilist ideas formed a triangle of commerce in the Atlantic Ocean. European countries exported textile and manufactured goods to colonies while importing tobacco, cotton, sugar and other raw materials from those countries.

4.2.2 The classical theories

The core of mercantilism theory - support of economic nationalism and government intervention - became heavily criticised by several trade economists at that time. The seventeenth century began with classical economists Adam Smith and David Ricardo presenting the first integral international trade theory by focusing on finding the main principles governing foreign exchange.

4.2.2.1 The absolute advantage theory - Adam Smith

In his work *The Wealth of Nations*, Adam Smith (1776) wrote that for two countries to voluntarily trade with each other, both countries must gain. According to Smith, two nations gain when trade between them is based on the concept of the absolute advantage. A country exports a product that is more efficient to produce or has an absolute advantage and imports a product that is less efficient or has an absolute disadvantage. Smith stated that both countries could gain by each specialising in the manufacture of a product in which it has the absolute advantage and trading a part of its output with other nations for the commodity in which it has the absolute disadvantage. In this case, all countries will gain if they trade freely and specialise in producing according to their absolute advantage.

Smith advocated for free trade as some products can be produced at lower costs in foreign countries. He assumed that countries would behave as individuals. Therefore, according to him, "division of labour" is most important for the growth of production. Moreover, individuals (countries) produce goods and services that are then exchanged for other products and services that will satisfy their desires, rather than each (individual or country) trying to produce all goods and services (Borkakoti, 1998).

> It is a maxim of every prudent master of a family, never to attempt to make at home what it will cost him more to make than to buy. The tailor does not attempt to make his own shoes but buys them from the shoe-maker. The shoemaker does not attempt to make his own clothes, but employs a tailor.

> What is prudence in the conduct of every private family, can scarce be folly in that of a great kingdom. If a foreign country supply us with a commodity cheaper that we ourselves can make it, better buy it off them with some part of the produce of our own industry, employed in a way in which we have some advantage.
>
> The natural advantages which one country has over another in producing particular commodities are sometimes so great, that it is acknowledged by all the world to be in vain to struggle with them. By means of glasses, hotbeds, and hot-walls, very good grapes can be raised in Scotland, and very good wine too can be made of them at about thirty times the expense for which at least equally good wine can be bought from foreign countries. (Smith 1776, pp. 346-347)

Smith assumed that labour is the only factor of production and that the cost of production is the labour time required to produce it. Consequently, the cost of making a particular product in different countries is different because of differences in labour efficiency in these countries (Grimwade, 2000). To show this, consider the small numerical example of two countries, A and B, which produce two goods, cloth and wheat (cloth represents a manufactured good and wheat an agricultural product) by using only identical labour recourses. In country A, the labour required to make one unit of cloth and wheat are 20 and 10 units, respectively. In a country B, the labour required per unit of cloth and wheat is four and 28 units, respectively. Country A has the absolute advantage in producing wheat, as the production of one unit of wheat requires fewer units of labour ($10 < 20$) than that of the manufacture of cloth. It is similar in country B, which has the absolute advantage in producing fabric. If there is free trade, country A will specialise in the production of wheat and will export to B. In contrast, country B will produce and export cloth to country A. However, Smith did not explain causes of free trade or why one country manages to produce some products at lower costs than can other nations (Borkakoti, 1998).

The core concept of Smith's theory depends on a country having the absolute advantage; the theory does not explain what happens if a country does not have an absolute advantage in any product or if one country has an absolute advantage in the production of all goods. Is it then worthwhile for them to specialise and trade? David Ricardo provides the answer to these questions.

4.2.2.2 The theory of comparative advantage - David Ricardo

In response to Smith's theory of absolute advantage, David Ricardo formed the theory of comparative advantage to explain international trade. The principle of advantage may be demonstrated by the concept of opportunity costs (Grimwade, 2000, p. 3). This idea expresses the cost of one item in terms of the opportunity sacrificed to obtain another item; a cost to the country of producing one more unit of one item is equal to the amount of another item that needs to be given up. A country has a comparative advantage in producing goods if the opportunity cost of producing that commodity (in terms of other products) is lower in that country than it is in other states (Krugman et al., 2012). Ricardo explained his theory through the difference in labour productivity and different levels of technology. Labour is the only factor of production and the opportunity cost of the product with regard to another product is the ratio of unit labour requirements in producing two different goods in two countries (Krugman et al., 2012).

Ricardo studied the international economy of a two-nation (England and Portugal), two-commodity (cloth and wine) world to explain the comparative advantage. In his book, *Principles of Political Economy and Taxation*, Ricardo demonstrated that:

> England may be so circumstanced, that to produce the cloth may require labour of 100 men for one year, and if she attempted to make wine, it might require the labour of 120 men for the same time. England would therefore find it her interest to import wine, and to purchase it by the exportation of cloth. To produce the wine in Portugal might require only the labour of 80 men for one year, and to produce the cloth in the same country might require the labour of 90 men for the same time. It would therefore be advantageous for her to export wine in exchange for cloth. (Ricardo 1996, p. 126)

Table 4.1 shows that Portugal has an absolute advantage in producing both products. Portugal produces one unit of cloth per 90 days; England needs 100 days to produce the same amount of fabric. To produce one unit of wine, Portugal takes 80 days while for the same, England takes 120 days. According to the theory of absolute advantage, there would be no trade between the two countries.

However, if we look at the opportunity cost of producing each product in both countries, it appears that England has the comparative advantage in the production of cloth and Portugal in wine. In the absence of trade, in Portugal one unit of cloth would be exchanged for 9/8 units of

wine: the ratio of the production costs of cloth and wine is 90 divided by 80; therefore, one unit of cloth is equal to 9/8 of wine. In England, one unit of cloth would be exchanged for 5/6 units of wine (the ratio of the production costs of cloth and wine being 100 divided by 120, where one unit of linen equals 5/6 of wine). Hence, England can produce a cloth with the relative cost (to wine) cheaper than Portugal, 5/6 is smaller than 9/8.

Table 4.1: Ricardo's example of the comparative advantage

Country	**Number of days for producing every product**	
	Cloth (one unit)	Wine (one unit)
Portugal	90	80
England	100	120

Source: Compilation based on Ricardo's example in *Principles of Political Economy and Taxation* (19960).

Ricardo supposed that both countries completely specialise in the production of a product that has a comparative advantage. Therefore, in Ricardo's example, Portugal would specialise in the manufacture of wine while cloth would be produced in England. Table 4.2 shows the amount of labour needed for the production of one unit of each product, the output per country and the global production before and after specialisation with the same labour inputs.

Table 4.2: Comparative advantage specialisation and gains from trade in the Ricardian theory

Before specialisation			
	England	Portugal	**World output**
Cloth	100 days = 1 unit	90 days = 1 unit	**2 units**
Wine	120 days = 1unit	80 days = 1 unit	**2 units**
After specialisation			
	England	Portugal	**World output**
Cloth	220 days= 220/100units		**2.2 units**
Wine		170days = 170/80 units	**2.125 units**

Source: Compilation based on Ricardo's example in *Principles of Political Economy and Taxation* (1996).

After specialisation, the world output of both goods increases with the same labour input. Thus, trade between England and Portugal after specialisation can improve the consumption of cloth and wine in both countries. Each country can benefit from international trade if they make the best use of resources and knowledge of the country.

Both states can profit from the exchange if each country exports the goods in which it has a comparative advantage (Krugman et al., 2012).

4.2.3 The neoclassical theories of international trade

The Ricardian theory has been a governing principle of the international trade theory. However, in reality trade could be partially explained by the difference in labour productivity as well as other factors of production such as capital, land and mineral resources. A critical view of single factor production was developed by Eli Heckscher and Bertil Ohlin. In their well-known Heckscher-Ohlin model, they pointed out that the comparative advantage is determined by the interaction among nations' resources and the technology of production. The model is based on the following assumptions:

1. In the model, two countries exchange two products produced by just two factors (capital and labour).
2. In both countries, one good is capital-intensive and the other is labour-intensive.
3. There are constant returns to scale for both goods in both countries.
4. Technologies and any new knowledge in production are the same for both countries.
5. Commodities are homogenous; there is no difference between the same goods produced by different producers.
6. Consumer preferences are equal in both countries.
7. The factors of productions are mobile within each country but not internationally.
8. Both goods and factor markets are perfectly competitive.
9. There are no barriers to trade such as tariffs or transport costs.

Based on these assumptions, differences in comparative costs are explained by differences in the amounts of various factors with which countries are endowed and the proportions of factors needed for the production (Grimwade, 2000). Production of different products requires varying amounts of land, capital and labour. Countries are endowed with different quantities of these factors; some are abundant with capital, some with labour, some with land. Thus, the relative prices of these factors will vary from one country to another and consequently the costs of producing the same products will differ between countries. For example, the cost of making capital-intensive products will be lower in countries that are well-endowed with capital. Therefore, a country with an abundance of labour tends to produce labour-intensive products for export, while a capital-abundant country exports capital-intensive products. The abundance of

production factors determines a country's trading pattern (Krugman et al., 2012). When international trade takes place, as Ohlin (1933) stated:

> The most immediate effect of trade under the conditions which have been assumed to exist is that commodity prices everywhere are made to tally. So long as there are no costs of transport or other impediments to trade, all commodities must command the same prices in all regions. Trade has, however a far-reaching influence also on the prices and the combination and use of the productive factors, in brief, on the whole price system. In the both regions, the factor that is relatively abundant becomes more in demand and fetches a higher price, whereas the factor that is scantily supplied becomes less in demand and gets a relatively lower reward than before. (Ohlin, 1933, p. 24)

The prices of production factors would not be equal between two countries, but there is a tendency to the equalisation of prices of the same. Paul Samuelson (1948) worked on Ohlin's ideas and introduced the term "factor price equalisation". Together with Stolper (1941), he proposed that an increase in the price of a final product increases the return to the factor of production, which is intensively used in the production of that product and reduces the return to the other factor. The opening of trade between countries will lead some sectors to gain and others to lose from free trade in the long run, which, as the Stolper-Samuelson theorem explains, will have an impact on relative product prices:

> It raises the real return to the factor used intensively in the rising-price industry, and it lowers the real return to the factor used intensively in the falling-price industry. (Pugel 2012, p. 74)

One of the main contributions to neoclassical trade theory was made by Polish economist Rybczynski. He analysed the production levels of final goods, production factor availability and the relationships between them in the context of the Heckscher–Ohlin model. In the Heckscher-Ohlin model, an increase in a supply of one production factors will lead to an increase in production of both goods in one economy. Rybczynski assumed that this would not happen. He suggested that the output of one product would increase and the output of another would decrease. According to Rybczynski's theorem, if the supply of one production factors increases, the output of the final good that utilises this production factor relatively intensively

will rise and subsequently, a decline is seen in the final production of another product, assuming that both products are made in equilibrium (Marrewijk, 2007).

The first empirical test of the Hecksher-Ohlin theory was conducted by Wassily Leontief, using input-output analysis for the United States of America (USA). He wanted to test the assumption that the USA, which is presumably more capital-abundant than other countries, would export capital-intensive products and therefore exchange these goods for labour-intensive products (Grimwade, 2000; Takayama, 1972). Interestingly, his results showed that the USA imported more capital-intensive commodities than it was exporting, contradicting the Heckscher-Ohlin theorem. Later he tried to explain the results by the fact that American workers are (three times) more efficient than foreign workers (Leontief, 1953, 1986). Leontief's research questioned the Heckscher-Ohlin assumption of homogeneous labour. Other assumptions of the theory were also questioned, such as the two factors of production, an absence of trade barriers and the homogeneity of the factors of production (Haberler, 1936).

Heckscher and Ohlin assumed that consumer preferences remain the same across countries; in other words, the neoclassical trade theories explain international trade from the perspective of the supply side of an economy.

4.2.4 New theories of international trade

World trade patterns have changed considerably over the past few decades. International trade is no longer only governed by the simple nineteenth-century Ricardian model or the Heckscher-Ohlin explanation of inter-industry trade patterns. According to the classical and neoclassical assumption of comparative advantage, countries that have a similar comparative advantage should be less engaged with each other in trade. Each country should export goods in which it has a comparative advantage and import goods in which it has a comparative disadvantage. In reality, much trade takes this form of inter-industry trade patterns. Also, nowadays a significant part of the trade of industrialised countries is with other industrialised countries. Those countries have similar relative factors of endowments and trade goods that are very similar. Industrialised countries export around 70 percent of their products to other industrialised nations and about 40 percent of total world trade is between industrialised states (Pugel, 2012).

The assumptions of constant economies of scale and perfect competition must be relaxed to understand the reasons for the increasing amount of trade in similar products. According to "old" theories, constant returns to scale seem to be supported by the fact that the production of commodities entering international trade has not led to complete specialisation, so that imported products of a given industry supplement, rather than replace, domestic production. Perfect competition is an abstraction; the existence of free markets in capitalist economies results in the operation of market forces guiding the behaviour of producers and consumers. Therefore, new theories incorporate economies of scale, in which large production lowers per unit costs of production, as observed in the effects of trade liberalisation and new applications of imperfect competition. Moreover, countries' differences in technology and technological changes over time also call for new trade theories.

4.2.4.1 Intra-industry trade

One of the most notable trends in world trade has been the expansion of intra-industry trade, particularly between developed countries (Bano, Takahashi & Scrimgeour, 2013). Balasa introduced and explained "intra-industry trade" as a reciprocal exchange of similar commodities within the same product category. Inter-industry trade was explained by the classical and neoclassical theories: countries export commodities most suited to their factors of endowment and import the goods less suited to their national characteristics (Grubel & Lloyd, 1975, p. 5). In the context of the Heckscher-Ohlin model, the term industry represents an agglomeration of firms that produce an entirely homogeneous commodity such as cloth or wheat. However, all goods and services possess large numbers of characteristics and no two are ever perfect substitutes for each other. In their book *Intra-Industry Trade*, Grubel and Lloyd (1975) explained and empirically tested some aspects of international trade in differentiated products that are close substitutes. They based their model on the modification of several simplified assumptions of the Heckscher-Ohlin model such as zero transportation, storage and selling costs, the existence of perfect competition and constant returns to scale. The most significant contribution of their research is the introduction of the possibility that there are increasing returns to scale due to the savings from a long run in manufacture of differentiated products.

4.2.4.2 Technological gap model

Neoclassical trade theories do not consider technological change and it is assumed that new technology spreads through invention and innovation to other countries and is available to producers abroad by the process of international diffusion (Grimwade, 2000). Consequently, technological change does not determine the comparative advantage of any product or industry of any country in the long run. However, dynamic changes in technology can determinate trade between nations. In his book *International Trade and Technical Change*, Michael Posner (1961) was the first economist to address the issue of technological change and its repercussions on international trade. According to his technological gap model, trade between industrialised countries is driven by the establishment of new products and processes of production:

> Because particular technical changes originate in one country, 'comparative cost differences' may induce trade in particular goods during the lapse of time taken for the rest of the world to imitate one country's innovation. (Posner, 1961, p.1)

This gives a worldwide monopoly to an innovative company and country until the other nations learn how to produce these products. During this period, other countries have to import these goods. Therefore, the time needed to imitate new products (imitation lag) creates international trade (Gandolfo, 2013). However, Posner did not explain the rise of the technological gaps or the size of imitation lag.

4.2.4.3 Theory of product life cycle

In 1966, Vernon extended the technological gap model and developed the theory of product life cycle. He found inspiration in the life cycle of a product and used it to explain how trade patterns develop over the time, focusing on the dynamics of comparative advantage. According to this theory, the product cycle includes three distinct phases: the location of the new product, the maturing product and the standardised product (Vernon, 1966). All three phases have different effects on the international trade.

During the first phase, a new product is launched, usually demanding highly-skilled labour. The invention of a new product is most common for a domestic market. Once a product is established in the national market, export will take place. In the second phase, the product reaches maturity. Companies will look for the best way to export the product to satisfy domestic and foreign demand. This can be done in two ways: licencing foreign producers or producing

the product in factories located in the area of demand, thereby reducing transport costs and eliminating tariffs and non-tariff barriers. In the standardisation phase, the product can be produced by less-skilled labour using mass production techniques. At this stage, it might be an advantage to shift production to less-developed countries. Consequently, export of the product from the originating country falters and falls and the innovating country gradually becomes an importer of the commodity (Gandolfo, 2013). The significant contribution of Vernon's theory is the explanation of international investments as a part of international trade.

The technological gap and product cycle models can be seen as dynamic extensions of the static Heckscher-Ohlin model, rather than as alternative models (Salvatore, 2004). As such, trade is based on changes in technology (relative factor of abundance) between countries over time. Therefore, time is an important determinant of international trade.

4.2.4.4 Porter's theory of competitive advantage

In his book *The Competitive Advantage of Nation*, Michael Porter (1990) developed the theory of competitive advantage. He stressed the importance of a rise of multinational companies, which not only export but compete abroad through daughter companies and changes in international competition, which have weakened the traditional explanation of comparative advantage (Porter, 1990). The focus is therefore on the competitive advantage that companies have in one country. These companies are mostly multinational corporations located in a few countries. Companies succeed in obtaining an advantage in competing with others by using different strategies such as economies of scale, product differentiation and technological innovation. The dynamic process of competition leads to the success or failure of some firms, followed by a change of a particular industry. This means that countries may obtain or lose a competitive advantage in an industry depending on firms' capacity to respond to challenges. Porter (1990) asked why a nation achieves international success in a particular industry.

> The answer lies in four broad attributes of a nation that shape the environment in which local firms compete that promote or impede the creation of competitive advantage: factor conditions, demand conditions, related and supporting industries: and firm strategy, structure and rivalry. (Porter ,1990, p.72)

Two additional factors, chance and government, play a significant role in the process. Chance events such as an emergence of a strong local demand, invention or a breakout of war may give

companies in one country a head start. In addition, governments' policies can increase the competitive advantage of a particular industry (Grimwade, 2000):

> Nations are most likely to succeed in industries or industry segments where the national "diamond", a term I will use to refer to the determinants as a system, is the most favourable. This is not to say that all a nation's firms will achieve competitive advantage in an industry. In a fact, the most dynamic the national environment, the more likely it is that some firms will fail, because not all have equal skills and recourses nor do they exploit the national environment equally well. Yet those companies that emerge from such an environment will prosper in international competition. (Porter, 1990, p.72)

According to Porter (1990), firms are a part of a country's advantage in a particular industry. Moreover, such companies are multinational corporations facing competition on a global level.

4.2.4.5 Theory of geography

Most trade models do not consider transportation costs (assumed to be zero), the location and space of production and the influence of these factors on international trade. In his book *Geography and Trade*, Paul Krugman (1993) contributes to new trade theories by introducing "economic geography" and presents a model that links international trade and geography. In the model, the interaction of demand, transportation costs and increasing returns leads to a cumulative process of regional divergence (Krugman, 1993). He showed two things:

> That increasing returns are in fact a pervasive influence on the economy, and that these increasing returns give a decisive role to history in determining the geography of real economies. (Krugman, 1993, p.10)

Economies of scale make producers concentrate production of services and goods to a limited number of places. The individual producer would prefer to locate where there is an existing demand for or supply of inputs, because of the costs of transactions across space. Therefore, there is a concentration of industry and tendency of self-sustaining (the two main factors of this model).

4.3 Gains from free trade and trade under trade barriers

Countries can benefit from free trade by specialising in the production of goods and services in which they are particularly efficient and by trading some of those for goods and services that can be made only at higher costs in the home country (Van den Berg, 2004). At the beginning of the chapter, it was demonstrated that such specialisation could take different forms. The following section explains the gains to be made from trade by using the standard model of international trade (referring to the Heckscher-Ohlin model) as well as classical and neoclassical trade theories. In this model, the welfare gains from international trade originate from inter-industry specialisation and comparative advantage. In addition, gains from free trade can come from other types of specialisation, such as intra-industry specialisation, economies of scale and differences in technology (Grubel & Lloyd, 1975; Krugman, 1980; Posner, 1961).

The production possibility frontier (PPF) and indifference curve are used to explain the gains from trade, as in Figure 4.1 they represent supply and demand in the closed economy. In the example, the country has resources to produce two different goods, food and textiles. Any combination of those two goods can be made on or below the PPF by utilising all available resources. The PPF has a concave shape, which means that the production of the two goods has a characteristic of increasing costs. If there is an increase in the production level of one good, the marginal opportunity cost of another product that could be made instead will be increasing (Van den Berg, 2004). The demand side of the economy is represented by an indifference curve, which represents the different combinations of the food and textile along the convex line that has the same value for consumers. The consumers will maximise their welfare when the curve is higher.

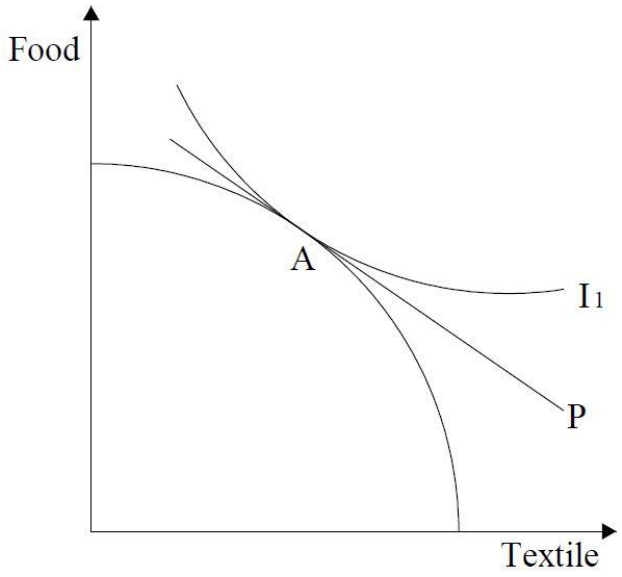
For an economy to reach equilibrium, there are five assumptions that should be fulfilled:

> Consumers maximise their consumption, producers maximise profits, all capital is employed, all labour is employed, [and] the supply of both goods is equal to the demand of the same. (Marrewijk, 2007, p. 140)

Under autarky (an absence of trade), the optimal consumption and production in one economy are at point A, as in Figure 4.1. At this point, the PPF and indifference curve touch each other (demonstrated by line P); the curves are tangent at this point. Line P shows the equilibrium price

in the absence of trade. At point A, the economy achieves its maximum under autarky; it cannot produce any other combination of food and textiles with the available resources that will provide higher welfare to the consumers.

Figure 4.1: Equilibrium under autarky



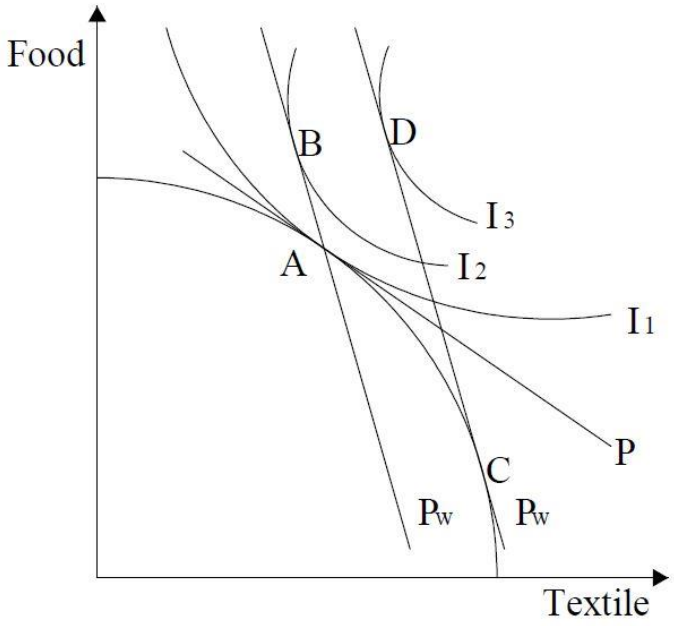
Source: Salvatore, 2004.

It is unlikely that all countries in the world are endowed with the same quantity of production factors and levels of technology. Therefore, PPFs will differ from one country to another. Consumers' preferences will also vary from one to another. Consequently, the relative prices of textiles and food in the home economy will be different from those in other countries and from world prices. These differences provide a foundation for trade gains.

Consider Figure 4.2, where line P_w represents the world price ratio. The slope of P_w is different from the slope of line P (relative price in a closed economy). Under free trade, the price ratio in the domestic economy is now the same as the world price ratio, which makes the textile more expensive in the home economy than it was before free trade. Therefore, consumers exchange the textiles for food through trade in order to consume more. They can now consume at point B that is beyond PPF while production is still at the point A. The shift from indifference curve I_1 to I_2 represents an improvement in national welfare under free trade, i.e. the gain from international exchange (Van den Berg, 2004). If domestic economy consequently specialises in the production of textiles, the production would be now at point C. At point C, real income rises

and consumption increases, represented by a shift of the indifference curve to the higher position I_3. Consumers can now consume at point D. The transition from B to D accounts for the gain that comes from specialisation in production.

Figure 4.2: Equilibrium under free trade



Source: Salvatore, 2004.

In summary, free trade brings two types of gains. Firstly, production gains come from specialisation as a country can use its resources more effectively in industries where it has a comparative advantage. Secondly, consumption gains mean that consumers can consume more of the products that they were able to buy under autarky.

4.4 Tariffs and non-tariff barriers, restrictions on international trade

Even though free trade is beneficial for countries and increases their welfare, most countries impose a variety of measures to affect the composition and volume of international trade. Governments use rules, laws and regulations called trade policy to influence exports and imports and to stimulate economic growth. These trade barriers protect particular industries from foreign competition, which impacts on domestic production. Furthermore, some governments impose tariffs to increase tax revenue. This is more characteristic of developing

countries, as this might be one of their primary sources of income. Alternatively, governments use trade barriers to accomplish a broad range of economic and social objectives, such as protecting consumers from dangerous goods. Such protectionism can take several forms, including tariffs and numerous kinds of non-tariff barriers. The following is an economic analysis of these trade policies.

4.4.1 Tariffs

Tariffs, perhaps the most common of trade restrictions, are taxes levied by governments on imports and exports. Tariffs can take several forms: an ad valorem tariff is expressed as a percentage of the value of the product; a specific tariff is a fixed sum of money imposed on a unit of imported product; and a compound tariff is a combination of the two (Grimwade, 2000; Husted & Melvin, 1993; Van den Berg, 2004). Tariffs diminish the welfare of exporting countries by restricting access to foreign markets and they reduce the well-being of the importing country that levies tariffs.

A partial equilibrium model is used here to analyse the economic effects of tariffs. As effects are different between small and large economies, two cases will be presented. The concept of consumer and producer surplus will be used to measure the costs and benefits of tariffs while net welfare effect is expressed as a sum of gains and losses.

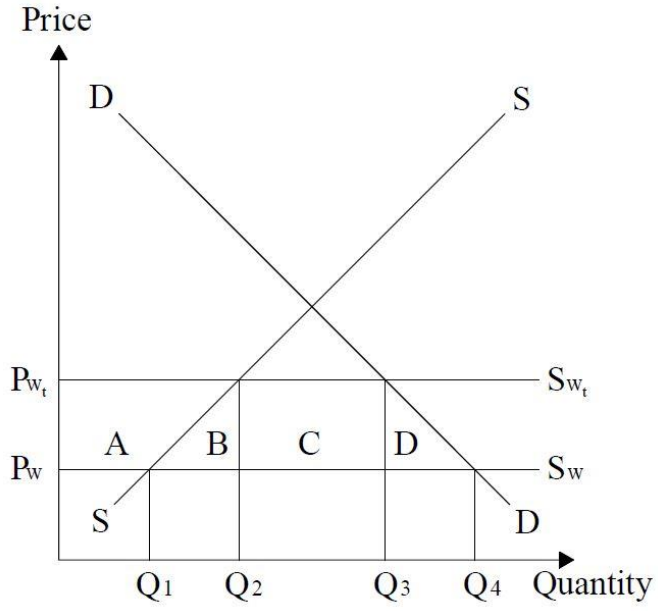
Figure 4.3 shows the impact of a tariff in a small nation. Consider the demand and supply for a particular product (for example, meat) in the importing country as illustrated by curves D and S. The world supply of meat is represented by the horizontal line S_w, which is perfectly elastic. It is assumed that the home country is a small trading country, unable to influence the world price of meat. Under free trade and the absence of tariffs, the domestic price of meat is the same as the world price, P_w. At that price, domestic consumption of meat is at point Q_4 and domestic supply is Q_1. The home country consumes more than it can produce. Therefore, the difference between Q_1 and Q_4 is the quantity of meat the country imports. Suppose now that the government levies a tariff on a portion of meat. The new price for imported meat is P_{wt}, and the difference between P_{wt} and P_w is equal to the tariff. Because of the rise in price, domestic suppliers increase production to Q_2 and the country now consumes less at point Q_3. With the tariff in place, imports are equal to Q_2-Q_3. The tariff creates costs by increasing the domestic price of meat, which reduces the consumer surplus for the area equal to A+B+C+D. Domestic producers are

better off as they receive a higher price per unit of meat supplied and gain producer surplus (area A). Finally, the government collects revenues by imposing a tax on imports that is equal to the quantity of imported meat multiplied by the tariff per unit imported (area C). Gains from the tariff are equal to producer surplus and government revenue (area A+C). Consumers are worse off. There is a loss in consumer surplus equal to area A+B+C+D. The loss should be deducted from the gain to calculate the net economic welfare effect. Figure 4.3 shows the impact of a tariff in a small nation.

$$(A + C) - (A + B + C + D) = - (B + D)$$

Economic welfare loss is called a deadweight loss, the area of the two triangles B and D (production and consumption effects, respectively). The production effect (area B) considers the additional cost of extending domestic meat production. Area D represents the consumption effect, a loss in consumer well-being. If domestic demand and supply are less elastic, the slope of demand and supply curves would be steeper. Imports would decline less, followed by a smaller welfare loss after the introduction of the tariff.

Figure 4.3: Effects of a tariff in a small country



Source: Walther, 1997, p. 158.

The effects of tariffs levied by a large country are similar, but with one important addition: a large country can affect world prices. Introduction of a tariff in a large country will have effects

on its imports and exports. When a large country exports more or imports less of a particular product, the world price of that product will decline or rise, leading to changes in foreign supply and demand elasticity. Figure 4.4 shows the effects of a tariff on a large country.

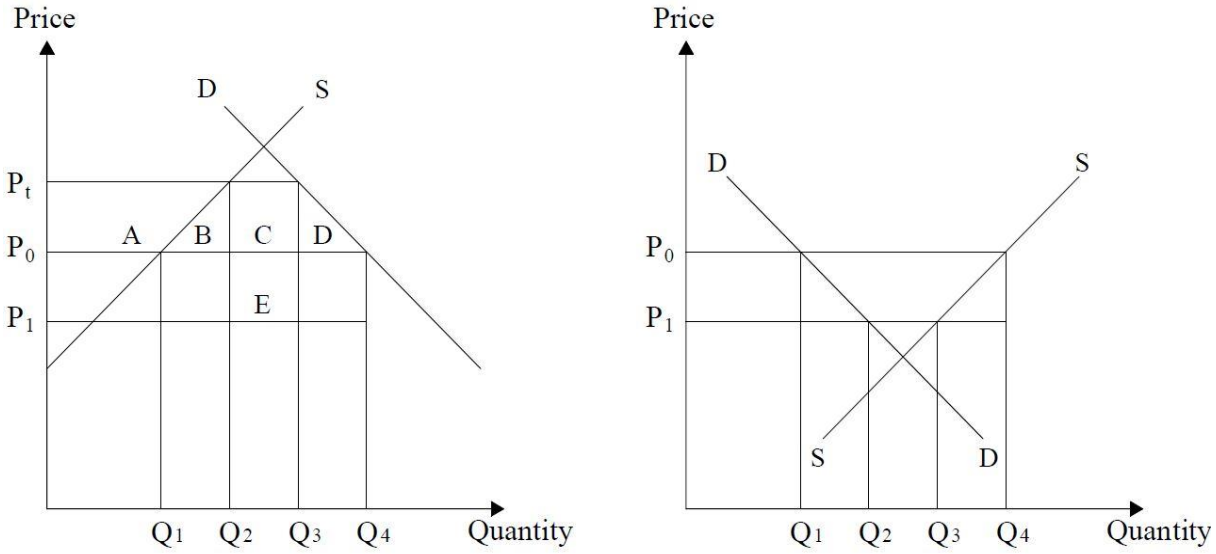
On the left side graph of Figure 4.4, the large country market is presented. Demand (D) and supply (S) for a particular product (for example, milk) are given. Under free trade, the domestic price of milk is price P_0. At that price, domestic consumption of milk is Q_4 and domestic supply is Q_1. The difference between Q_1-Q_4 is the quantity of imported milk, as consumption is higher than production. Suppose that the government introduces a tariff on milk that is equal to the difference between P_0 and P_t. The price for imported milk is now P_t. Because of the increase in price, domestic suppliers increase their production to Q_2 and consumption drops to Q_3. As a result, import is equal to Q_2-Q_3. This influences global demand to decrease and the world price to fall to P_1, even in the exporter country. The graph on the right side of Figure 4.4 shows the effect of the tariff on the exporting country. Because of the world price drop to P_1, the large country imports the same product from the rest of the world at a price lower than that before the introduction of the tariff. The tariff collected is P_1-P_t. Consumers pay more, but only for the amount of P_0-P_t. Foreign exporters pay the rest of the tariff, the difference of P_1-P_0. In this case, foreign exporters are ready to pay part of the tariff to keep a share of the large country's market.

The introduction of the tariff in the large country has similar effects to that of a small country. Consumers are worse off and the loss in consumer surplus equals the area of A+B+C+D. Gains from the tariff are equal to the producer surplus and government revenue, A+C. In addition, one more area should be considered: area E, equivalent to the volume of imports Q_2-Q_3 multiplied by the fall in world price. Therefore, the net welfare effect of the tariff on the large country is:

$$A + C + E - (A + B + C + D) = E - (B + D)$$

If area E is greater than the deadweight loss (area B+D), the tariff will improve economic welfare in the large country. However, if area B+D is greater than area E, then there is a welfare loss (Grimwade, 2000; Walther, 1997).

Figure 4.4: Effects of a tariff in a large country



Source: Walther, 1997.

This explains why large countries and trading blocs such as the USA and the EU levy tariffs on different products, particularly on textiles and agricultural goods: such tariffs lower world prices and returns to foreign producers and can be beneficial for large countries. However, in a small country, the whole burden of the tariff is borne by domestic consumers. Therefore, a small nation is best to lower its tariffs to zero.

4.4.2 Non-tariff barriers

Apart from tariffs, the most common barriers to international trade, there are other ways for governments to protect domestic production from foreign competition. In recent decades, the importance of non-tariff barriers has increased. As tariffs have been reduced, the restrictions of non-tariff barriers have become more transparent. There are many types of non-trade barriers. Grimwade (2000) distinguishes between quantitative restrictions, which restrict the number of goods that can be exported or imported, and non-tariff barriers, which increase the costs of imports (and work as tariffs). Table 4.3 shows the main types of non-tariff barriers. The following section presents the economic impacts of the most common non-trade barriers.

Table 4.3: Main types of non-tariff barriers to trade

	Quantitatively operating	Operating on price/cost
Direct measures	Import quotas Import licensing Embargoes Voluntary export restraints Discriminatory public procurement	Variable import levies Advance deposit requirements Anti-dumping duties Countervailing duties Domestic subsidies
Indirect measures		Packaging and labelling requirements Health and safety regulations Custom clearance procedures Customs classification procedures Customs valuation procedures

Source: Grimwade (2000), p.289.

4.4.2.1 Quotas

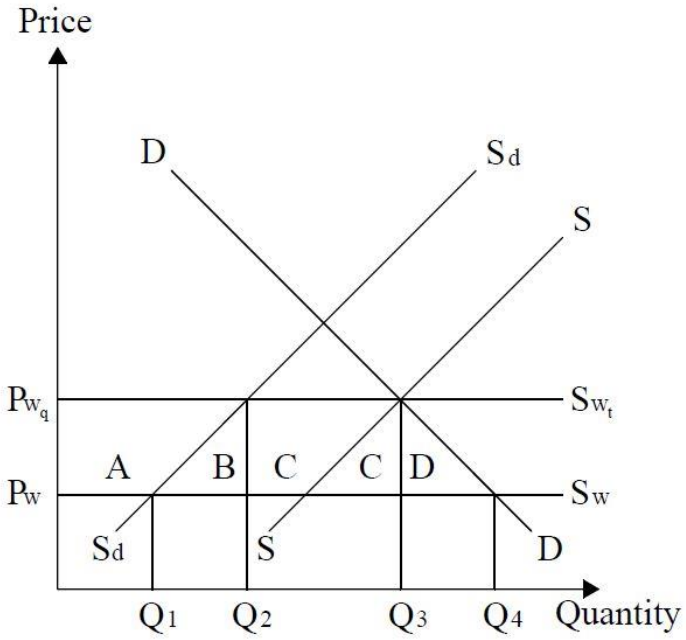
Quotas are quantitative limitations imposed by a government on the amount of a product allowed to be exported or imported (Salvatore, 2004). Quotas protect domestic producers, limit foreign competition and have similar effects to tariffs.

Figure 4.5 shows a partial equilibrium analysis of the effects of a quota. Demand (D) and supply (S) for one particular product are represented. Under free trade, the domestic price is P_w. The difference between Q_1-Q_4 is the quantity of imports, as consumption is higher than production. Suppose that the government introduces a quota that limits the quantity of a product allowed to enter the county (equal to Q_2-Q_3). Later, the total supply is equal to the domestic production plus imports, represented by supply curve S_d. Now the price for the imported product increases to level P_{wq}, domestic supply increases to Q_2 and consumers consume less (Q_3). Of course, imports are equal to the quota, Q_2-Q_3. The quota creates costs by increasing domestic price, which reduces consumer surplus equal to the area of A+B+C+D. However, domestic producers are better off as they receive a higher price per product supplied and gain producer surplus (area A). Loss of economic welfare is the same as dead-weight loss (area of triangles B and D), the same as for a tariff.

The main difference between quotas and tariffs is who gains the revenues from the quota (area C). Income from the quota can be collected by the government, the domestic companies importing the product, foreign exporters or by a combination of these (Walther, 1997). If the government provides import permits, it will earn revenue. If the government gives licences to

selected importers, they gain the quota rent by importing the good at the world price, P_w and selling it at the domestic market price, P_{wq}. In some cases, quota rent can be collected by foreign exporters, if they manage to increase prices to P_{wq}. To summarise, the net economic welfare of the quota is the same as for a tariff, except for when foreign exporters gain the quota rent.

Figure 4.5: Effects of a quota



Source: Walther, 1997, p. 163.

Under a quota, the number of foreign goods on the domestic market is fixed. Hence, domestic producers may, without any fear of foreign competition, increase the price of the same product. In the case of a tariff, if local producers increase their price that of the world price plus tariff, the consumers would shift their consumption to the foreign product instead of domestic (Walther, 1997). Therefore, a tariff will not protect domestic industry in the same way as a quota, which can shield industry from foreign competition. This may explain why large countries and economic blocs such as the EU are willing to cut tariffs but not to eliminate non-trade barriers such as quota.

4.4.2.2 Voluntary export restraints

Voluntary export restraints are a type of trade barrier similar to quotas. A voluntary export restraint is an agreement between two countries under which the exporting nation voluntary

limits its exports of a particular industry to the importing nation. This is in contrast to import quotas, where the restriction is imposed by the exporting country. Voluntary export restraints are negotiated, while quotas are unilaterally levied. One of the first examples of this was in 1937 when Japanese exporters of textiles voluntary limited their exports to the USA (Grimwade, 2000).

Voluntary export restraints have similar effects as those of import quotas. The domestic price goes up, producers increase production, consumers buy less and imports decrease. The consumer loss will be the same as with a quota (A+B+C+D) and the producer surplus is A, as shown in Figure 4.5: Effects of a quota. However, the foreign exporters earn area C, the rent of a voluntary export restraint. Therefore, area C represents the shift from the welfare of domestic consumers to the well-being of foreign nation exporters. The total welfare loss is area A+B+D. The losses of a voluntary export restraint are higher than the costs of both tariffs and quotas (Grimwade, 2000; Husted & Melvin, 1993; Van den Berg, 2004; Walther, 1997; Salvatore; 2004).

4.4.2.3 Export subsidies

There are many types of subsidies and for agricultural products they are common. Currently agriculture is subsidised in most countries for the purposes of self-sufficiency, to avoid dependence on food imports from abroad or to maintain rural lifestyle. Domestic subsidies are paid for the whole production of a particular product while export subsidies are paid on the amount of the production for export. Other indirect forms of export subsidies are characteristic for manufactured goods, such as banks subsidising loans to importers in foreign markets, tax rebates, insurance guarantees, guarantees against losses, government funding for research and development and direct grants (Grimwade, 2000; Husted & Melvin, 1993).

Effects of export subsidies in a large economy are analysed by partial economic model, as shown in Figure 4.6. Demand and supply curves for a particular product (for example, butter) are represented by D and S. Under free trade, the domestic price is P_w. At that price, domestic consumption of butter is Q_2 and supply is Q_3. The difference between Q_2-Q_3 is the quantity of exported butter, as production is higher than the consumption. Suppose that the government introduces an export subsidy: for example, pays a certain amount of money per unit of butter exported. The export subsidy will increase the price of butter, P_w to P_s for domestic producers

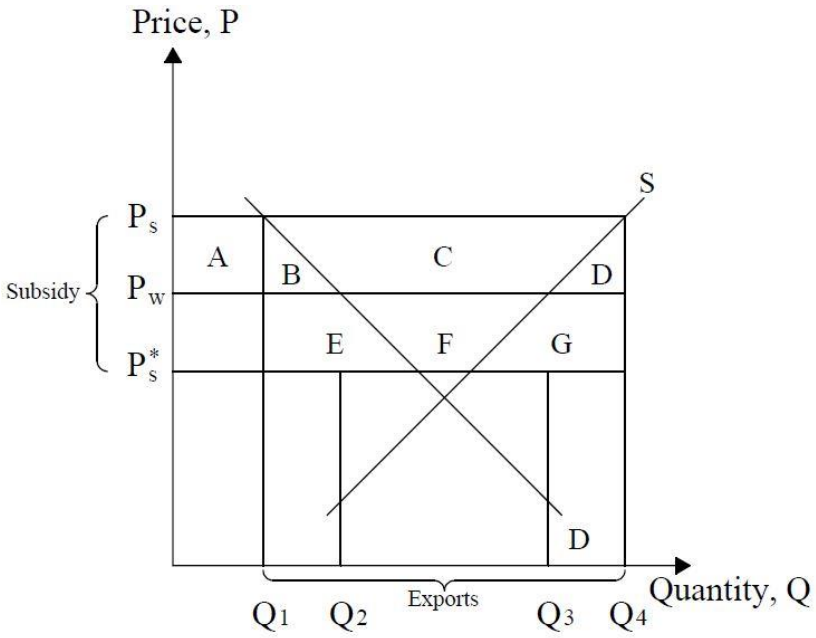
and consumers. Because of the increase in price, local suppliers expand their production to Q_4 and consumption drops to Q_1. Therefore, export is equal to Q_1-Q_4. The global demand decreases and the world price falls to P_s^*; the price increase is less than the subsidy. Because of the world price drop to P_s^*, the large country exports butter to the rest of the world at a lower price P_s^* than before the introduction of the subsidy. After a drop in the world price, the subsidy paid by the government is equal to the area of the exports multiplied by subsidy P_s^*-P_s.

The export subsidy creates costs by increasing the domestic price of butter, which reduces the consumer surplus for an area equal to A+B. However, domestic producers are better off as they receive a higher price per unit of butter exported and producer surplus increase for the area A+B+C. Finally, the government would lose by spending money on the subsidy. The loss is equal to the quantity of exported butter multiplied by the amount of subsidy, represented by area B+C+D+E+F+G. Therefore, the net welfare effect of the subsidy is:

$$(A + B + C) - (A + B) - (B + C + D + E + F + G) = -(B + D + E + F + G)$$

To summarise, the net economic welfare of the export subsidy leads to economic welfare losses.

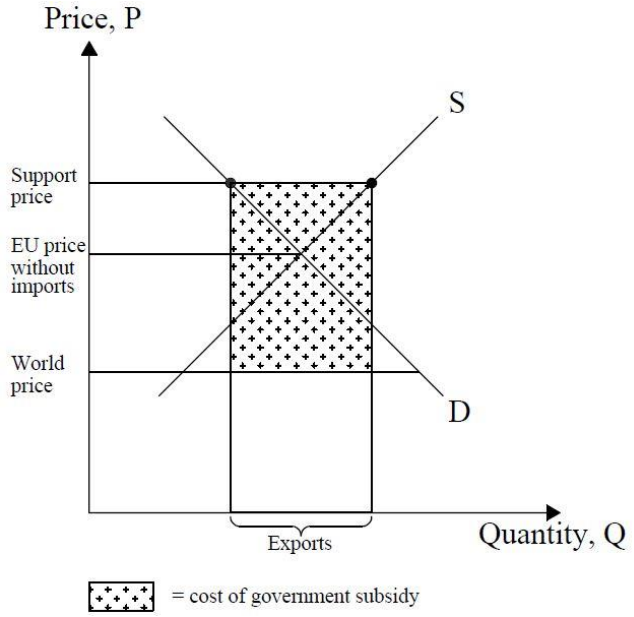
Figure 4.6: Effects of export subsidies



Source: Krugman, Obstfeld and Melitz, 2012, p. 233.

For example, the European Union's (EU) agriculture is heavily protected and subsidised through the Common Agricultural Policy (CAP) programmes. At the beginning of the CAP, apart from export subsidies, the EU guaranteed high prices to its farmers. Because of the promised high prices, production increased drastically while consumption stayed stable and did not match the supply. Consequently, the EU bought agricultural products and stockpiled. Self-efficiency increased, which turned the EU in a net exporter of agricultural commodities, disrupting world markets including in New Zealand. Figure 4.7 shows the effects of the CAP. They are the same as those presented in Figure 4.6, with the small difference that EU support prices are so high that under free trade, the EU would be a net importer of agricultural goods.

Figure 4.7: Effects of the Common Agricultural Policy



Source: Krugman, Obstfeld and Melitz, 2012, p. 235.

4.4.2.4 Other non-tariff barriers

Health and safety standards regulate production and supply of goods with the aim of protecting consumers from products that are dangerous to their health and safety. For example, the EU has banned the import of hormone-treated meat (mainly from the USA), claiming that there is likely a risk to public health. As a result, domestic producers can increase their prices as they take a larger share of the market and face less competition.

Technical regulations and standards are mandatory requirements set by governments that require producers to make a particular product in a certain way before it can be lawfully put on the domestic market.

Government procurement policies represent purchases of goods and services by a government (federal, state or local) from national producers, usually established by legislative mandate. The effects of this policy are similar to tariffs as domestic producers can charge a government with higher prices knowing that they are not competing with foreign producers. Such government policies increase its expenditure and distribute income from taxpayers to domestic producers (Grimwade, 2000; Husted & Melvin, 1993). In most countries, a government's purchases of

goods and services are between 10 and twenty percent of total demand in the economy, protecting a large part of that economy (Grimwade, 2000).

4.5 Theories of regional trade integration and the customs union

In reality, free trade does not exist, as many countries do not allow free movement of goods and services. Governments prefer to limit trade flows by use of trade policy instruments such as import tariffs and quotas, voluntary export restraints and export subsidies. Protectionist trade policies reduce the efficiency of world resources and welfare.

Governments protect their trade even if the best solution is to eliminate tariff barriers unilaterally or jointly (Heap & Varoufakis, 2004). Each government may choose to protect its economy by introducing tariffs, making the best solution for itself, no matter what other governments decide. This prevents them from reaching the best possible outcome by acting unilaterally. As governments are protective, there is a need to negotiate trade policies through international agreements. In this way, liberalisation can come through multilateral agreements or agreements among countries, called preferential trade agreements (Markusen, 1995). Multilaterally-negotiated tariff reductions began soon after the end of World War II and took place under the General Agreement on Tariffs and Trade (GATT), now the World Trade Organisation (WTO) (Krugman et al., 2012). Significant post-war progress in the liberalisation of trade was achieved through international negotiation when governments agreed to engage in multilateral tariff reduction. In the early 2000s, difficulties in concluding the Doha WTO Round encouraged countries to enter into other markets by signing bilateral trade agreements. In recent years, preferential trade agreements have been a priority for WTO members.

According to Balassa (1967), preferential trade cooperation can take many forms. Firstly, a free trade agreement (FTA) is the least restrictive, where two or more countries agree to abolish trade barriers and goods move freely between the members while countries are still free to impose their own tariffs upon the rest of the world. The next more powerful form of cooperation is a customs union, similar to a free trade area but including common external tariffs against non-members. Furthermore, when trade barriers are eliminated on movement of factors of production (capital and labour) and services, the association is named a common market. The

next stage, an economic union, includes an agreement to coordinate tax, monetary and fiscal policies.

According to the GATT Article XXIV ("Territorial Application, Customs Unions and Free-trade Areas"), a customs union is defined as follows:

> A customs union shall be understood to mean the substitution of a single customs territory for two or more customs territories, so that:
>
> (1) duties and other restrictive regulations of commerce (except, where necessary, those permitted under Articles XI, XII, XIII, XIV, XV and XX) are eliminated with respect to substantially all the trade between the constituent territories of the union or at least with respect to substantially all the trade in products originating in such territories, and,
>
> (2) subject to the provisions of paragraph 9, substantially the same duties and other regulations of commerce are applied by each of the members of the union to the trade of territories not included in the union. (General Agreement on Tariffs and Trade (GATT), 55 U.N.T.S. 194 Article XXIV, Oct. 30, 1947)

According to the GATT Article XXIV ("Territorial Application, Customs Unions and Free-trade Areas"), a FTA is defined as follows:

> A free-trade area shall be understood to mean a group of two or more customs territories in which the duties and other restrictive regulations of commerce (except, where necessary, those permitted under Articles XI, XII, XIII, XIV, XV and XX) are eliminated on substantially all the trade between the constituent territories in products originating in such territories. (General Agreement on Tariffs and Trade (GATT), 55 U.N.T.S. 194 Article XXIV, Oct. 30, 1947)

The theory of customs unions examines whether changes in trade barriers are beneficial to countries that reach trade agreements between each other and whether the creation of free trade areas is trade creating or trade diverting. The theory also examines circumstances under which countries are better or worse off (Markusen, 1995). It assumes that the creation of FTAs or customs unions and the reduction of tariffs improve welfare of its members (Markusen 1995, 314). The economic impacts of preferential trade agreements are presented in the following section.

4.6 Potential economic effects of deep integration

As discussed in the first part of this chapter, free trade benefits countries that specialise and manufacture products in which they are particularly efficient. In the classical and neoclassical theories, specialisation takes the form of inter-industry specialisation while in the new theories, the form of intra-industry specialisation (Grimwade, 2000). Various potential welfare effects arise from trade agreements according to the different type of specialisation. Therefore, it is necessary to summarise them in two separate categories: effects in traditional classical and neoclassical trade theory and effects in new trade theory (Salvatore, 2004; Van den Berg, 2004; Walther, 1997).

4.6.1 Effects in traditional classical and neoclassical trade theory

Economic integration between countries may either enhance national and regional welfare or it may hurt country/countries and reduce their economic well-being. Viner (1950) found out that the creation of a customs union may have either positive or adverse effects, which he called trade-creating and trade-diverting effects.

Trade creation occurs when the domestic production of one of the members is replaced by lower-cost imported goods from the other member. This leads to better specialisation in production, letting individuals and companies have the comparative advantage based on costs. Apart from increasing the welfare of member countries, it also enhances the welfare of the rest of the world because the growth in the real income increases the imports into a customs union. Trade diversion occurs when a customs union between countries leads to lower cost imports from the rest of the world being replaced by higher cost imports from a member country. It transfers production from more efficient producers who have the comparative advantage but are not a member to less efficient producers/members of a customs union. In that way, trade diversion reduces welfare and the world allocation of recourses is not utilised. Furthermore, trade-diverting may reduce or increase the welfare of countries that are a part of the customs union, while reducing the world welfare.

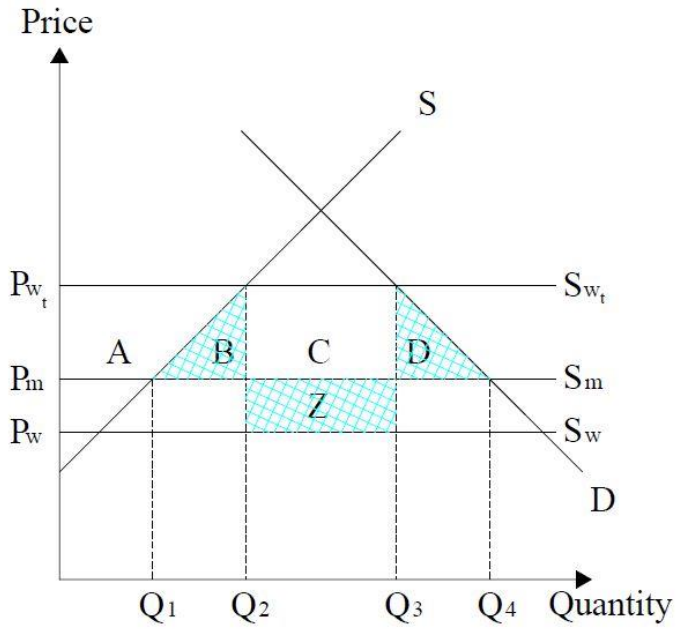
Figure 4.8 shows the effects of trade creation and trade diversion by use of the partial equilibrium model. FTA as a form of preferential trade agreement will be used in the example as it is relevant to the thesis topic. Before the creation of an FTA, country A levies the same tariff

on product X for all trade partners. The price of product X, P_{wt}, is equal to the world price, P_w, plus tariff. Given these assumptions, country A produces Q_2 units of product X and consumes Q_3 units of the same product, meaning that importation is Q_2-Q_3 units. Now, assume that country A forms an FTA with country B. After the creation of the FTA, both countries continue to impose tariffs on product X imported from the rest of the world. It is assumed that product X has a lower price in country B than in country A and that the country B is not the world's most efficient producer of product X. Therefore, in country A, the price of product X is now P_m, which is higher than P_w but lower than P_{wt}. Once the FTA takes place, country A's consumption grows from Q_3 to Q_4, production falls from Q_2 to Q_1, and importation is Q_1-Q_4 units. Therefore, an FTA leads to greater trade. Consumers from country A buy product X from country B at a lower price than before, but still higher than the world price, P_w. Consumer surplus is the area of A+B+C+D. Producers in country A reduce their production and their lose a part of their producer surplus (area A). The government loses the revenue it could collect before the formation of the FTA (area C). The consumer surplus area (A+B+C+D) is larger than the loss in producer surplus and government revenue loss (area A+C).

$$(A + B + C + D) - (A + C) = B + D$$

The net gain of consumer surplus (triangles B and D) is called trade creation. However, an FTA brings some costs. Prior to the creation of the FTA, country A was importing product X from the most efficient world producer (not from county B) at a price P_w and a tariff was imposed on the product. Government revenue was equal to area C+Z. With the creation of the FTA, only area C is gained and neutralised by consumer surplus, while area Z is a government loss. This government revenue loss represents trade diversion from the economic integration. If the positive effects of trade creation are greater than the negative effect of trade diversion, area B+D>Z. As a consequence, the country will benefit from the economic integration.

Figure 4.8: Trade creation and trade diversion



Source: Walther, 1997, p. 331.

Several factors determinate the extent to which countries can benefit from creating an FTA. Firstly, domestic demand elasticity of a particular product will influence the size of trade creation. In case of greater demand elasticity, the lower price of a particular product will boost demand and bring greater consumption gains. The higher tax levied by the government before the formation of the FTA will reduce the price of the product. Furthermore, the greater difference between the cost of production of the world's most efficient producer and the member of the FTA brings greater trade diversion and vice versa. Supply elasticity is another factor. Higher supply elasticity, weaker trade diversion, demand and supply elasticity and the difference in prices determinate the net welfare effect. The smaller difference in the price and higher the elasticity the greater net welfare of the economic integration is expected (Van den Berg, 2004; Walther, 1997).

4.6.2 Effects in the new trade theory

According to Grimwade (2000), Salvatore (2004) and Walther (1997), the effects of deep integration in the new trade theory, also called dynamic effects, are:

1. Gains from the economies of scale. By expanding the size of the internal market, firms within an FTA get an opportunity to extend production and to reach economies of scale. In industries where the increase in a volume of output make costs per unit fall, firms are able to operate across two markets and achieve an optimum scale of production (Krugman, 1979).
2. Variety specification or "love of variety" effect. Consumers gain from an increase in new varieties of products from which they can choose (Krugman, 1979), or benefit by buying almost the same product at a lower cost to meet individual taste (Lancaster, 1975). Gains from trade come from intra-industry specialisation, letting members of the FTA increase the variation of the same good.
3. Gains from increased competition. Economic integration exposes domestic producers to higher competition after the abolishment of trade barriers, which were protecting them from the foreign competition. Increased competition reduces the power in monopolistic and oligopolistic markets. Firms are keener to compete with other producers in the FTA. There are possibilities for companies to merge and adopt the most efficient management practices and technologies or to go out of business.
4. Investment stimulus. Non-FTA members might be attracted to set up companies within the FTA to avoid the discriminatory trade barriers imposed by FTA members on the other countries. In addition, trade liberalisation stimulates domestic firms to invest more in order to expand their capacity to meet the increased demand of two markets. Also, local companies invest in new technologies, research and development to better face growing competition. Consequently, all lead to increased economic growth.

4.7 Conclusion

This chapter provided an overview of international trade theories aiming to understand trade relations between the EU and New Zealand and why they trade from the theoretical perspective.

The fundamental assumptions of classical trade theory include perfect competition and homogeneous commodities across countries. Classical theories explain trade by differences in countries' resources. These theories help answer questions such as, why Ghana mostly exports cocoa bean, why China exports shirts and why New Zealand exports agricultural products. According to these theories, export is determined by the abundance of factors of productions: Ghana is abundant with sunshine, China is abundant with labour and New Zealand is rich in land and water.

However, the opposite situation exists where commodities are differentiated. Market structures diverge from the theory of perfect competition by being based on structures such as monopolistic competition and oligopoly. Also, there is evidence of economies of scale (Grubel & Lloyd, 1975). As an illustration, the export of New Zealand dairy products can be explained by both classical and new theories. New Zealand is abundant with land and water, so tends to be relatively efficient in producing commodities that are intensive in these factors. On the other hand, New Zealand exports dairy products because of the size of that particular industry and because the industry reaches economies of scale. World trade patterns could be explained by both classical and new theories, but the situation could not be understood using only one theory.

As discussed, countries can benefit from free trade by specialising in the production of goods in which they are particularly efficient and by trading some of these products for goods and services that would be made at relatively higher costs within the home country. This chapter presented gains from trade followed by an analysis of commonly used trade restrictions and their impacts on trade flows. In addition, this chapter contributed to understanding why EU and New Zealand governments use trade restrictions despite the argument that free trade is beneficial for countries and increases their welfare. Both governments of the EU and New Zealand use different trade policies to influence exports, imports and stimulate the economic growth. The chapter explained why the EU as a large trading block levies tariffs on different products, particularly on agricultural goods: such tariffs lower world prices and returns to foreign producers and can be beneficial for large countries. However, in a small country, the whole burden of the tariff is borne by domestic consumers. Therefore, a small nation is best to lower its tariffs to zero, which explains why New Zealand has relatively low tariffs for most products and why New Zealand agriculture operates with minimal government intervention, is market-oriented and measures such as export subsidies for agricultural goods do not exist. Therefore, it was essential to understand the rationale behind restrictive trade policies and how they operate, particularly those that relate to agriculture.

The final section of the chapter examined theories of regional trade integration and the economic effects of deep integration, trade creation and trade diversion which are essential in order to understand and explain the potential effects of a FTA between New Zealand and the EU.

Chapter 5
Trade modelling literature review

5.1 Introduction

This chapter presents the main trade modelling tools and their basic elements, complemented by a review of existing empirical assessments of bilateral trade agreements relevant to the European Union (EU) and New Zealand. This chapter aims to examine the different types of models that have been used to estimate the potential effects of free trade agreements (FTA) and how various changes in trade policies have been implemented in different scenarios. It identifies the advantages and disadvantages of different types of modelling and proposes the most suitable model to address the research question and engage in empirical analysis.

5.2 Main trade modelling techniques

In this section, the principal trade modelling techniques are presented. The major quantitative empirical methodologies used to model and examine the effects of trade agreements are the revealed comparative advantage (RCA) index, gravity models and market equilibrium models, both partial and general (Elliott, 2004; Ivus & Strong, 2007; Piermartini & Teh, 2005; Tongeren, Meijl & Surry, 2001).

Gravity models examine trade patterns between two or more nations and the evolution of those relations over time as a function of various variables. They measure past trade policy effects and can be used as a policy guide for understanding the consequences of particular changes (Piermardtini & Teh, 2005). The model name originates from the similarity to Newton's law of gravity, which states that the gravitational force between two things is proportional to their mass and diminishes with distance. In a gravity trade model, the amount of trade between two countries is proportional to the dimension of their economies and decreases with distance. Several factors influence the volume of trade between countries: the size of the gross domestic product (GDP) of each country or population and the distance between them (Krugman et al.,

2012). The assumption is that large economies with large incomes or populations tend to spend more on imports than economies with smaller incomes or populations. In addition, large countries tend to attract other economies to spend their income on a variety of products that they produce. The distance in gravity models does not only reflect distance in kilometres, expressed as transportation costs, but other factors meaning "distance" in a broader sense; for example, economic factors such as tariffs and non-tariff barriers. Gravity models can include additional variables and explain how these variables are significant to trade. Therefore, they can model "non-economic" factors such as common language, cultural or religious differences, institutional differences, political differences and/or differences in technological advancement (Bergeijk & Brakman, 2010).

RCA index is used to compute the relative advantage or disadvantage of a country in a specific industry or commodity (Balassa, 1967). Balassa (1967) introduced RCA as a way to measure and assess the comparative advantage of a country based on the assumptions of the Ricardian comparative advantage concept. The index shows the relative performance of a country in particular products and is used to examine export potential. It enables analysis of potential trade diversion and creation from trade agreements. It is established on the assumption that international trade patterns of goods reflect differences in relative productivity. The RCA index of exports is revealed by a country's industry or commodity composition of exports compared to the rest of the world. However, the RCA index has limitations. It may not reveal true comparative advantage, particularly for sectors with government intervention such as agriculture. As the RCA index follows actual trade patterns and calculations are based on real trade data, a divergence may occur because of government interventions such as tariffs and quotas, transport costs, export incentives and labour market distortions. The RCA index may be more or less accurate, depending on the level of disaggregation at which the analysis is applied. For example, if an RCA is computed at the broad level of the dairy industry (e.g. harmonised system (HS) code 04), a strong RCA of a particular dairy product could be missed.

Market equilibrium models are mostly used to measure or quantify existing and future effects of trade agreements. They examine the impact of trade policy changes on a set of economic variables such as trade flows and welfare effects. They are mostly used to analyse and address "what if" questions (Piermartini & Teh, 2005). Market equilibrium models determinate

equilibrium quantities and prices on markets or one single market and, consequently, the adjustment of prices that will clear markets. Market equilibrium models assume a rational behaviour of economic agents, including consumers, producers and governments: that consumers and suppliers will optimise their choices (the first consuming a set of goods that will maximise their utility for a budget that is at their disposal, the latter trying to combine inputs to minimise the costs for a given level of output) (Piermartini & Teh, 2005).

Perfect competition and homogeneous preferences/goods are among the other significant assumptions integrated into these models. Heterogeneous goods can be incorporated into equilibrium models. Country of origin can differentiate products. Armington (1969) proposed that imported and domestic goods are not substitutes for each other; for example, he assumed that two German car brands, Audi and Volkswagen, could be substituted for each other, but not for any foreign cars. In other words, domestic and foreign cars are imperfect substitutes.

Within market equilibrium models, economy-wide computable general equilibrium (CGE) models and partial-economy partial equilibrium models are the two major methods for modelling international trade (Elliott, 2004; Tongeren et al., 2001; Tongeren & Meijl, 1999).

The economy-wide framework gives a picture of a whole economy, including interactions with other economies. General equilibrium models usually contain input-output tables and include equations that describe the behavioural response of different economic agents (Tongeren & Meijl 1999). They examine interactions between markets and simultaneously model multiple markets by providing a solution for the economy as a whole, not for a single market in isolation (Creedy, 1996). CGE models assess how an economy will look in the future as a result of trade policy changes. They are used for the evaluation of different trade policies by involving more than one sector, country or both (Gilbert, 2010).

In general, CGE models classify economic agents into two groups: companies that produce items and the households that use them (Krauss & Johnson, 1974). A circular flow links the two groups. Companies buy primary goods from households and intermediate goods from other foreign or domestic companies, then later on sell those goods to households or the government, or they export the goods. Households sell factors of productions to firms and in return gain wages for labour, rent for land and interest for capital. The role of government is to raise taxes

and other revenues to buy goods and provide public services and commodities (Ivus & Strong, 2007).

CGE models differ between model specifications such as a degree of production disaggregation, consumption function, trade implementation into a model and consumption elasticity. Elasticity is used to manage the substitutability between factors of production and different products in consumption. The main advantage of CGE models is that they can compute welfare and distribution effects separate to estimating trade, income and production. CGE models are a useful tool for analysing the multilateral trade liberalisation effects or regional integration because they can model trade policy changes in multiple countries and markets simultaneously.

The Global Trade Analysis Project (GTAP) model is the most used and available global CGE model. It includes all sectors and most regions in the world. The model is based on assumptions of perfect competition and constant returns to scale. In addition, bilateral trade can be modelled via the Armington assumption (Hertel, 1997). Complementary to the GTAP model is the GTAP database, which represents the world economy by describing consumption and production, covering intermediate commodities and services, bilateral trade information and barriers to trade. There are many versions of the GTAP database as it is updated every few years. Other CGE models include MEGABARE, RUNS, GREEN, G-cubed and the Michigan BDS model.

Partial equilibrium models focus on only one sector or industry within the whole economy as well as interactions between markets of different goods within that sector or industry, not taking into consideration linkages with other sectors or industries (Cagatey & Saunders, 2003). Compared to a general equilibrium framework, partial equilibrium models analyse a larger number of variables directly influencing a market or group of associated markets, while impacts of other factors are ignored. In other words, policy changes in one sector would not affect demand in another sector caused by a shift in price in the first. The effects of factor markets and the rest of the economy are integrated into the model as exogenous variables (Tongeren et al., 2001), for example household income, population and technical change. Partial equilibrium models usually capture demand and supply interactions among products of one particular industry. Domestic prices are determined by demand equations and constant elasticity supply. International trade is modelled as the difference between the demand and supply of one country,

then the balances of all countries are brought into the world market, where the world market clearing price for each product determinates the level of international trade (Tongeren & Meijl, 1999). Analysis based on a partial equilibrium approach therefore simplifies an economy, isolates a market and studies products separately (Starr, 1997).

Partial equilibrium models can be a useful in examining the effects of policy changes in particular sectors. For example, agriculture, which has a complex set of policies affecting its trade, often requires more complex modelling. In this case, partial equilibrium models can provide a more detailed analysis of the particular market or product than general equilibrium models, giving a more realistic view of the simulation. The majority of partial equilibrium models focus on the agricultural sector, differing by design, products included, products disaggregation and country/region coverage. Examples of partial equilibrium models are the Agricultural Trade Policy Simulation Model (ATPSM), AGLINK, the Static World Policy Simulation Model (SWOPSIM), FAO World Model, FAPRI and GAPsi (Tongeren & Meijl, 1999).

Computable general and partial equilibrium models can be classified as dynamic or comparative static models. A comparative static approach compares different equilibrium states of an economy without considering the time path between equilibriums. In contrast, models based on a dynamic approach adjust equilibriums over time and can compute the accumulation of stocks such as capital stock (Tongeren et al., 2001).

Tariffs and quantitative barriers are the two types of trade policy examined in equilibrium models. Tariffs are commonly incorporated as the percentage difference between domestic and world prices (Tongeren et al., 2001). Quantitative restrictions such as quotas and voluntary export restraints are introduced as a constraint to trade flows.

To summarise, given the aims and issues addressed by research, all of the trade modelling tools discussed have advantages and disadvantages. The choice of modelling tool depends primarily upon the specific purpose of the research, the problem being solved and the availability of data and resources.

5.3 Literature on trade models used to measure the effects of the FTAs of New Zealand and the European Union

This section reviews the empirical studies that apply the main modelling approaches relevant to the FTAs of New Zealand and the EU. The majority of the studies used either gravity models or market equilibrium models, while a few employed a RCA index. The studies reviewed are presented based on the empirical methodology they applied.

5.3.1 Revealed comparative advantage index-based studies

Bano and Paswan (2010) analysed the current trade relations and future trade opportunities for New Zealand and India in the context of an FTA. They employed a RCA, intra-industry trade and trade potential index and calculated the RCA indexes for each commodity at one- and three-digit levels of HS code classification for the years of 2000, 2005 and 2007. Based on the RCA analyses, the authors showed that the two countries possess different RCAs. For example, within the food industry New Zealand has a strong RCA in the meat and dairy sector, while India has a strong RCA in rice production. According to the authors, both can economically gain from specialisation following an FTA. Based on intra-industry trade index analyses, they identified sectors with increased intra-industry trade in recent years that should be considered during FTA negotiations.

Brenton, Tourdyeva and Whalley (1997) analysed the potential economic effects of an FTA between the EU and Russia using the RCA index. This study aimed to understand the degree of trade diversion on countries outside of the FTA. First, the authors calculated RCA for each EU trading partner, including Russia, to identify products with a RCA. Secondly, they identified products for which both Russia and the considered country showed RCA in trade with the EU. They then calculated the market share of the identified products in EU imports. The authors did the same for Russian imports from the EU and other trading partners. They computed the RCA index on the four-digit level of the HS disaggregation system. Their results showed that the potential for trade creation and diversion is minor for the EU but significant for Russia.

Karakaya and Ozgen (2002) analysed the potential trade creation and trade diversion effects of the customs union between the EU and Turkey. They calculated the RCA index and used that to measure the effects of Turkey's EU accession on southern EU members, particularly Greece,

Portugal and Spain. They found that Turkey and the southern EU countries possess different RCAs and that the customs union between the EU and Turkey would not affect Greek, Portuguese and Spanish production and exports.

5.3.2 Gravity model-based studies

Selva and Garcia Alvarez-Coque (2006) used a gravity methodology to measure the impact of the Euro-Mediterranean Association Agreement on trade flows of fruit and vegetables between the EU and Mediterranean Partner Countries (MPC). The model integrated the EU-15 and eight south Mediterranean countries: Morocco, Tunisia, Egypt, Algeria, Jordan, Israel, Syria and Lebanon. They explained the trade flows of fruit and vegetables by distance, size of GDP and production per capita. The results showed that the agreement had increased the export of fruit and vegetables from MPCs to the EU market. However, all MPCs have not benefited equally. For example, Israel gained the most amongst all MPCs. The authors suggested that this can be explained by growing demand for quality products in the EU.

Duong (2016) analysed the impact of the FTA between the EU and Vietnam on the bilateral trade flows by employing a gravity model developed by Tinbergen. In addition, the author incorporated tariffs into the model to estimate the effects of tariff reduction in the context of this FTA. The results showed that the elimination of tariffs between the two countries would have a positive impact on bilateral trade.

Howard (2008) analysed the economic implications of the existing and proposed preferential trade agreements of New Zealand, focusing on New Zealand's dairy industry. The author used two quantitative methods, a gravity model and the GTAP. The gravity model was used to analyse New Zealand's existing preferential trade agreements. The data for each trade agreement was taken for the year it came into the force. The author analysed specific variables such as size of economy, taste preferences, expenditure capabilities, distance from New Zealand and language and cultural differences of each of the trading partners. The gravity model unexpectedly showed a statistically significant negative relationship between New Zealand's existing preferential trade agreements and its dairy exports. The author clarified these findings by explaining that some New Zealand trading partners treated its dairy goods as sensitive products and imposed long phase-out periods for tariffs on these products. However, the agreements that showed this negative relationship were recently concluded and it will be

several years or more before the effects of these trade agreements are measurable. For example, New Zealand's FTA with Australia was not shown to be a statistically negative relationship and it has been in force for a long time. The GTAP analysis is explained in the next section.

5.3.3 Market equilibrium model-based studies

The literature reviewed here concentrates of the use of market equilibrium based models focusing on the impact of future trade agreements of both the EU and New Zealand with third countries. The majority of studies employed CGE models, mostly the GTAP model without changing its structure, using different versions of the GTAP database. Only a few studies employed partial equilibrium models to assess trade liberalisation of the agricultural sector. Furthermore, several studies analysed trade liberalisation of the agricultural sector between New Zealand and the EU by employing partial equilibrium models. The following section provides insights into each of these empirical analyses. An overview of the empirical studies is summarised in Table 5.1.

Table 5.1: Review of studies modelling the impact of FTAs of both New Zealand and the European Union

Type of model	Study	FTA
Computable General Equilibrium (CGE) models		
Static CGE models		
	Deardorff et al. (1996)	The EU-Tunisia FTA
	Rutherford et al. (1997)	The EU-Morocco FTA
	Harrison et al. (1997)	Customs union between the EU and Turkey
	Jarocinska et al. (2010)	The EU-Russia FTA
	Francois et al. (2006)	The EU-Korea FTA
GTAP	Howard (2011)	New Zealand's FTAs under negotiations
	Kim et al. (2007)	New Zealand-South Korea FTA
	Sawauchi & Yamamoto (2006)	New Zealand-Japan FTA
	Sandrey & Grinsted (2008)	New Zealand-China FTA
	Strutt & Rae (2007)	New Zealand-China FTA
	Winchester (2005)	New Zealand-China FTA
	Cramon-Taubadel et al. (2010)	The EU- Ukraine FTA effects on agriculture
Dynamic CGE models		
	Sunesen et al. (2009)	The EU-Japan FTA
	European Commission & Government of Canada (2008)	The EU-Canada FTA
	Kim et al. (2007)	New Zealand-South Korea FTA
	Decreux et al. (2010)	The EU-South Korea FTA
Partial equilibrium models		
	Britz et al. (2007)	The EU and Mediterranean countries trade liberalisation
	Grethe (2003)	The EU and Turkey customs union
	Kavallari & Schmitz (2010)	The EU and Mediterranean Partner countries trade liberalisation
	Busse & Großmann (2007)	The EU Economic Partnership Agreement effect on West African countries
	Lang (2006)	The Economic Community of the West African States and the EU Economic Partnership Agreement
	Saunders, Wreford & Rasin (2005)	CAP reforms effects on the EU and New Zealand agricultural sectors
	Kogler (2006)	CAP reforms effects on New Zealand's beef and dairy sectors
	Guenther, Saunders & Tait (2016)	Full trade liberalisation in China and India on agricultural trade in the EU and New Zealand
	Saunders et al. (2016)	The EU-New Zealand FTA

Source: Own compilation.

5.3.3.1 Computable general equilibrium model-based studies

Deardorff, Brown and Stern (1996) examined the impacts of the FTA between Tunisia and the EU on the capital flows from the EU to Tunisia. They employed the Michigan Brown-Deardorff-Stern CGE trade model to simulate the removal of tariffs and non-tariff barriers to goods. They assumed that capital is mobile between sectors and from the EU into Tunisia. It also assumed that all sectors are monopolistically competitive, apart from agriculture, which is perfectly competitive. The model is static and all of the changes modelled occur at a single point in time. Their results estimated that the benefits for Tunisia would vary between minus 0.2 percent and 3.3 percent of its GDP, assuming mobility of capital in different sector. They found that capital flows have a relatively significant impact on gains.

Harrison, Rutherford and Tarr (1997) developed a generic CGE model for trade policy analysis across a wide range of sectors. Their model initially contained the EU, Turkey and the rest of the world and included 54 production sectors, five types of capital, eight types of labour and 40 households (distinguished by residence or income level). The research aimed to assess the impacts of the customs union between the EU and Turkey on Turkey's economy. The authors modelled seven scenarios: a customs union between the EU and Turkey; the impact of Turkish access to the EU market; the impact of product quality standards harmonisation; the impact of access to markets through the EU's preferential trade agreements; reduction of export subsidies in Turkey; and the implications of Turkey complying with the EU common external tariffs. They found that Turkey would gain between one and 1.5 percent of its GDP.

Rutherford, Rutstrom and Tarr (1997) used a static general equilibrium model to assess the FTA between the EU and Morocco. They assumed constant returns to scale, that producers behave competitively and that capital accumulation does not exist. The model is organised into 39 production sectors, including several agricultural products such as meat, dairy, fishing, forestry, cereal, sugar, citrus and vegetable products. They modelled a full unilateral trade liberalisation of Morocco with the rest of the world and different levels of market access for Moroccan products to the EU. They found that Moroccan GDP would increase by 2.6 percent if the full liberalisation with the rest of the world had occurred and that the EU-Morocco FTA would increase the GDP of Morocco by 1.5 percent. Their results implied that unilateral liberalisation is more beneficial to Morocco than the FTA with the EU.

Jarocinska, Maliszewska and Scasny (2010) applied a static general equilibrium model to evaluate the possible economic impacts of an FTA between the EU and Russia. Their model is based on the Multiregional Trade Model constituted by Harrison et al. (1997) and used the GTAP 7 database, including the EU's 27 member states, Russia, Ukraine and the rest of the world. The model includes 40 sectors. The agricultural industry is represented by eight groups of products: grains, vegetables and fruit, vegetable oils, sugar, meat, dairy, beverages and tobacco. Firstly, the authors modelled the implications of Russian's accession to the World Trade Organisation (WTO). Secondly, they used this as the benchmark to analyse "deep FTA" and "deep FTA+" scenarios. The "deep FTA" scenario assumed a full trade liberalisation of industrial products, 50 percent reduction in tariffs on agricultural products and a substantial elimination of non-tariff barriers. The second scenario is the same, as the first with the added assumption of an improved business environment in Russia. The authors indicated that an FTA between the EU and Russia would be beneficial for both regions. The "deep FTA+" scenario would bring a significant increase in Rusian GDP of 2.24 percent and an increase of at least 0.5 percent to the GDP of EU members such as Finland, the Netherlands, Ireland, Estonia, Slovakia, Slovenia and Sweden.

Francois, Norberg and Thelle (2007) used a global, multi-regional, multi-sectoral CGE model and the GTAP database 6.2 to estimate the economic impacts of the FTA between the EU and South Korea. They measured bilateral liberalisation of trade in agricultural goods, manufactured goods and services. The results indicated that GDP would increase by 0.3 percent in the EU and 1.6 percent in South Korea. This research highlighted that liberalisation of services and investment would be most beneficial to the EU as the barriers in these areas were the highest in South Korea. The authors estimated that liberalisation in services would attribute up to 70 percent of the relative change in the EU's GDP. In the case of South Korea, they estimated that the motor vehicle and electrical machinery sectors would benefit from increased output by up to 29 percent and 27 percent, respectively. The biggest losses for the EU would be in the same sectors. Final results showed that the liberalisation of all sectors would be beneficial to both economies as both would have an increase in real income, output and GDP. However, the effects would be more significant for the Korean economy as before the FTA, South Korea had a more protective trade policy than the EU.

Sawauchi and Yamamoto (2006) measured the potential impacts of an FTA between New Zealand and Japan by using the GTAP model. They estimated effects of various trade policy changes on a real GDP, agricultural and food sector outputs. The model results indicated that under full trade liberalisation, New Zealand's real GDP would increase by 0.24 percent and that Japan's GDP would expand by 0.01 percent. The New Zealand agricultural sector would expand by 11 percent while the food industry would grow by 19 percent. In contrast, the same Japanese sectors would decline by 0.8 and 0.6 percent, respectively.

Sandrey and Grinsted (2008) employed the GTAP model Version 7 to assess potential gains from the FTA between China and New Zealand. The researchers modelled a baseline scenario of the world economy for the years 2004 to 2020 and compared it to the complete removal of trade barriers between New Zealand and China. They modelled only trade in merchandise goods. Their results showed that New Zealand would experience an increase of up to 0.30 percent in its GDP. Additionally, Strutt and Rae (2007) used the dynamic GTAP model Version 6 to assess the impacts of an FTA between New Zealand and China. They found that New Zealand would experience significant gains and that the FTA would have would only have minor economic impacts upon China.

Winchester (2005) used the GTAP model Version 6 to examine the benefits of New Zealand's FTAs under negotiation, including with China, Hong Kong, Thailand, Chile, Malaysia and the Association of South East Asian Nations (ASEAN). Each agreement was modelled as a separate scenario. The effects of all of these potential agreements coming into force were estimated as an additional scenario. The author found that the agreement with China would benefit the New Zealand economy the most, by up to 0.22 percent of its GDP. New Zealand GDP is expected to increase by about 0.44 percent when all of its FTAs are in place.

Similarly, Howard (2011) used the GTAP to analyse the economic implications of the proposed preferential trade agreements of New Zealand by focusing on the dairy industry. The author developed six different scenarios, one scenario for each FTA under negotiation. These scenarios covered the Trans-Pacific Partnership, FTAs with South Korea, India, Gulf Cooperation Council and New Zealand-Russia-Belarus-Kazakhstan FTA. In addition, the scenario assuming that all agreements would come into force was modelled separately. The author found that the implementation of all of the potential agreements would have a positive effect on the New

Zealand economy, contributing to a substantial increase in producer prices, exports and the total output of its dairy industry. According to the results, New Zealand GDP is estimated to grow by 1.2 percent while growth in the output of its dairy sector is estimated to be four percent. Producer prices paid to farmers for milk should grow by three percent. The simulations of FTAs under negotiation showed that each of these FTAs would have a positive impact on the New Zealand economy and its dairy sector, with the exception of two scenarios: an FTA with India and an exclusion of the USA's agricultural sector from liberalisation under the Trans-Pacific Partnership.

Cramon-Taubadel, Hess and Brummer (2010) used Version 7 of the GTAP model to examine the effect of Ukraine's WTO membership on its agriculture sector and the potential effect of the EU-Ukraine FTA on Ukrainian agriculture. For the purpose of the research, the authors updated the trade database and included Ukraine as a separate country in the GTAP database for the first time. The authors assessed the impacts of the EU-Ukraine FTA by developing two scenarios. The first scenario assumed a 50 percent reduction in all tariffs between Ukraine and the EU. The second scenario is the same, with the added assumption of five percent exogenous technological improvements in the Ukrainian agriculture sector. Other scenarios presented assessed the impact of the Ukraine WTO accession. The findings suggested that both regions would benefit from the FTA: Ukraine's production and export of wheat, other grains and oilseeds would increase, as well as several other processed food products, and EU exports of high-quality agricultural products would also increase.

Kim et al. (2007) measured the potential impacts of the New Zealand and South Korea FTA. They employed static and dynamic general equilibrium models. The first was the GTAP model, the latter the G-Cubed dynamic CGE model. The authors developed a wide range of liberalisation scenarios such as complete immediate liberalisation, different periods of tariff phase-out and exclusion of some sectors and products from liberalisation. The results showed that the FTA would have a small, positive impact on both parties. Depending on the assumptions, Korea's GDP per annum would increase by between 0.01 and 0.08 percent and New Zealand's GDP would increase by between 0.02 and 0.25 percent. The study estimated that trade liberalisation would be beneficial for both New Zealand and Korean exporters, projecting an increase in exports from South Korea to New Zealand by 11 percent and from

New Zealand to Korea by 60 percent by 2030. The sector results showed that the Korean manufacturing sector and New Zealand's agricultural sector would benefit the most. They estimated that meat and dairy industries in New Zealand would gain significantly from the FTA.

The joint study by the European Commission and the Government of Canada (2008) examined the benefits and costs of a closer economic partnership between the EU and Canada. It reviewed the current tariff and non-tariff barriers imposed on goods, services and capital and measured the effects of eliminating those obstacles. The study employed the same CGE model framework used by Francois et al. (2007) to model the EU and South Korea FTA study. The results estimated that both parties would gain from the removal of tariff and non-tariff barriers, as the real annual GDP would increase by 0.08 percent in the EU and 0.77 percent in Canada by the year 2014. The study anticipated that exports from the EU to Canada would increase up to 24.3 percent and that Canadian exports to the EU would increase to 20.6 percent by 2014. The liberalisation of services would substantially contribute to GDP gains for both the EU and Canada. In addition to the quantitative analysis, the study examined existing bilateral cooperation in other economically related fields such as labour mobility, government procurement and electronic commerce in order to address the areas of potential cooperation.

In 2009, Sunesen, Francois and Thelle estimated the economic effects of trade liberalisation between the EU and Japan. The authors used a CGE model to assess economic impacts of the bilateral elimination of tariffs and non-tariff barriers. Their model was based on Francois, van Meijl and van Tongeren's (2005) model framework. Three scenarios were modelled: complete elimination of tariffs, complete elimination of non-tariff barriers and complete elimination of both. The results showed that if all tariffs were abolished, EU exports to Japan would increase by 23 percent and that the most significant gains would be made in the agricultural and processed food sectors. Japanese exports to the EU would increase by 30 percent, with the motor vehicle industry benefitting the most. If non-tariff barriers were eliminated entirely, EU exports would increase by up to 50 percent, with the most substantial trade gains in the chemical, motor vehicle and medical equipment sectors. Japanese exports would increase by up to 31 percent, with gains most likely to occur in the motor vehicle, chemical and electronic goods sectors. The simultaneous bilateral elimination of the tariff and non-tariff barriers would bring 0.14 and 0.31 percent increases in GDP to the EU and Japan, respectively.

Decreux, Milner and Peridy (2010) assessed the effects of the EU and South Korea FTA. This study was concluded the year before the FTA entered into force, so their assumptions lay close to the official agreement by considering liberalisation of goods, services and non-tariff barriers. The authors employed a MIRAGE CGE model because it includes characteristics such as imperfect competition, quality differentiation of products and allows the calculation of dynamic effects. The results showed that GDPs would expand by 0.08 percent in the EU and 0.84 percent in South Korea. EU exports to South Korea would grow by up to 82.6 percent while South Korean exports to the EU would increase by up to 38.4 percent. The sectoral analysis results showed that some sectors would benefit more than the other sectors from the FTA. In South Korea, the sectors experiencing benefits would be textiles, leather/clothing, automotive, transport equipment, the chemical industry and some other manufactured goods. In the EU, the sectors experiencing benefits would be the chemical industry, machinery, services and specific agricultural products such as meat and dairy. Furthermore, the authors compared their study to the Francois et al. (2007) study. The core macroeconomic results were alike, but the most significant difference was in sector results. Francois et al. (2007) anticipated a decline in EU exports of chemicals, machinery and other manufactured goods, while Decreux, Milner and Peridy (2010) estimated that this was unlikely. Those differences have been explained by the fact that non-tariff barriers were considered in their study and they were relatively high in Korea. This study showed that non-tariff barriers had higher protectionism than tariffs.

5.3.3.2 Partial equilibrium model-based studies

Grethe (2003) built a static partial equilibrium model named TURKISM to assess the impact of the customs union between the EU and Turkey, with the focus on agriculture. The agricultural sector was desegregated into 42 primary and processed agricultural goods. The author simulated three agricultural policy scenarios and their 2006 effects. Those scenarios were: a baseline status quo scenario, a full unilateral liberalisation of the Turkish agricultural sector and a customs union scenario assuming Turkish agriculture would become part of the customs union. The results showed that the complete liberalisation of the Turkish agricultural sector would bring a significant gain of about €670 million (or 0.4 percent of projected GDP) and that the customs union with the EU would bring a total gain of about €470 million (0.4 percent of projected GDP).

Busse and Großmann (2007) employed the partial equilibrium model of Verdoom (1960) to measure the consequence of the EU's Economic Partnership Agreement on the trade and government revenues of West African countries. The results showed that all West African countries would increase their imports from the EU by between 5.2 and 11.6 percent. Trade liberalisation would also impact total government revenues because the import duties are a significant source of total government revenues for most African nations. However, based on the authors' calculations, some African countries would experience a severe decline in total government revenues; the decrease would be the largest for Cape Verde, at 79 percent.

Similarly, Lang (2006) used the partial equilibrium SMART model to assess the Economic Partnership Agreement with the Economic Community of West African States (ECOWAS). The SMART was developed by the World Bank and the United Nations Conference on Trade and Development for measuring the impacts of the General Agreement on Tariffs and Trade (GATT) rounds. This model can be used for the evaluation of various trade policy changes on net trade effects and state tariff revenues. The authors modelled a complete removal of tariffs on all EU products imported into the ECOWAS market. The results showed that EU exports to ECOWAS would increase by US$1.8 billion, with the United Kingdom (UK) and France being the primary beneficiaries. In addition, some ECOWAS countries would lose tariff revenues and face shortfalls in their government revenues; for example, Ghana could lose 19 percent of its government revenue.

Britz, Junker, Weissleder and Adenauer (2007) employed a partial equilibrium model, the Common Agricultural Policy Regionalised Impact (CAPRI) to assess trade liberalisation between the EU and the Mediterranean countries. The CAPRI is designed for assessing impacts of international trade and agricultural policies with a focus on the EU's agricultural sector. It includes all the EU's countries and disaggregates them into regions. The Mediterranean area comprises of Turkey, Morocco and the rest of the Mediterranean. The researchers developed three scenarios: a full bilateral liberalisation, a partial bilateral liberalisation and a partial bilateral liberalisation with the integration of the G20 WTO proposal. Their results showed that partial trade liberalisation would not affect producer prices and/or quantities produced within the EU, whereas the full liberalisation scenario would increase producer prices and quantities

produced in member states such as the UK, Germany, France, the Czech Republic, Hungary and Poland, while Italy would experience a decrease.

Kavallari and Schmitz (2010) employed the multi-commodity, multi-region partial equilibrium trade model AGRISIM to analyse trade liberalisation of the agricultural sector between the EU and MPCs. The AGRISIM is a comparative static model that derives data from the Food and Agriculture Organization of the United Nations Statistics Division (FAOSTAT) and databases of the Organisation for Economic Co-operation and Development. The AGRISIM database contains 17 regions and 15 agricultural commodities. The authors modelled two scenarios: an implementation of the proposed FTA between the EU and MPCs and a full multilateral liberalisation. They showed that the welfare effects are positive, that liberalisation would bring some losses for producers in terms of decreased levels of supply and reduced prices but that consumers and taxpayers would benefit from this.

A few of the studies discussed here changes in the EU agricultural trade policy and their effects on the New Zealand agricultural sector. Saunders, Wreford and Rasin (2005) used a partial equilibrium model, the Lincoln Trade and Environmental Model (LTEM) to simulate the effects of the CAP reforms on the EU and New Zealand agricultural sectors. Simulated the Common Agricultural Policy (CAP) reforms included an increase in dairy quotas and a decrease in intervention prices in the dairy industry. In addition, a complete removal of all tariffs and export subsidies in all countries in the model was simulated. They showed that the total removal of tariffs and subsidies would positively affect New Zealand's producers but negatively affect EU farmers. However, CAP dairy reforms would negatively affect New Zealand's dairy sector.

Similarly, Kogler (2006) used the LTEM to analyse the CAP reforms of 2003. He simulated the Single Farm Payment scheme application and its implications on New Zealand's beef and dairy sectors. His results showed that New Zealand exports in dairy products and beef production would decline but that returns to New Zealand beef producers would increase.

Focusing on producer returns, Guenther, Saunders and Tait (2016) employed the LTEM model to examine the impacts of full trade liberalisation in China and India on agricultural trade in the EU and New Zealand. The authors developed two scenarios: the first assuming a complete removal of tariffs, non-tariff barriers and export subsidies in China in 2008 (as this was the year

New Zealand and China concluded the FTA) while the second scenario assumed the complete elimination of trade barriers in India. Their results showed that EU and New Zealand producers would be expected to have an increase in producer returns across all dairy and meat products as a result of production growth following increases in producer prices.

Saunders et al. (2016) used the LTEM model to examine the impacts of a FTA between New Zealand and the EU. The authors developed a full trade liberalisation scenario to assess the impacts of a removal of tariffs and duties. They assumed that all tariffs and duties applied to bilateral trade between New Zealand and the EU were eliminated in 2015. The results of this study showed that for the agricultural commodities considered, total producer returns in New Zealand and the EU would increase marginally. The most significant changes are expected for producer returns and production of apples in New Zealand. In addition, New Zealand wine producer returns would be expected to increase, while the production of the same product would decrease slightly.

5.4 Conclusion

This chapter presents the main trade modelling tools and their basic elements, complemented by a review of existing empirical assessments of bilateral trade agreements relevant to the EU and New Zealand. This aims to examine the different types of models used to estimate the potential effects of FTAs and how the various changes in trade policies have been implemented in different scenarios. It identifies the advantages and disadvantages of different types of modelling and proposes the most suitable model to address the research question and engage in empirical analysis.

The economic effects of FTAs are mostly measured by GCE models, with less attention given to the economic effects of FTAs on trade in agricultural products; usually agriculture is treated as a single sector in a whole economy, without agricultural commodities being disaggregated. The majority of presented studies measured impacts on the entire economy. However, a few studies employed partial equilibrium models with the main focus on the agricultural sector.

Studies on the EU and New Zealand FTAs mainly concentrated on analysing those agreements that had been already concluded or should be negotiated. One of the required steps in the EU's

trade negotiations is an assessment of the impact of FTAs before the start of negotiations. There is no such a compulsory policy in New Zealand. Overall, the studies reviewed in this part suggested that FTAs and trade liberalisation would bring mutual gains for both partners. Some studies noted that that higher benefits are expected to occur from the elimination of non-tariff barriers to trade in products, services and investments.

To summarise, the choice of trade modelling approach depends primarily on the specific purpose of the research. Therefore, the next chapter outlines the reasons for the selection of the model and the features of the selected partial equilibrium model, followed by the description of the scenario simulated by the model.

Chapter 6
The Lincoln Trade and Environment Model (LTEM)

6.1 Introduction

The previous chapter examined the different types of models that have been used to estimate the potential effects of free trade agreements (FTA) and how various changes in trade policies have been implemented into different scenarios. It identified the strengths and limitations of different types of modelling in order to propose the model most suitable for this research to provide adequate empirical analysis.

As discussed in Chapter 2, both New Zealand and the European Union (EU) face issues that may prove to be stumbling blocks for negotiations of their FTA, in particular for trade in agriculture goods. This research aims to examine the possible economic effects of the potential FTA agreement between New Zealand and the EU, with a detailed consideration of the agricultural sector. The primary tool chosen to do this is a partial equilibrium trade model, as it enables detailed analysis of the agricultural sector with a high desegregation of commodities. The Lincoln Trade and Environment Model (LTEM) was specifically selected for this research.

The LTEM includes New Zealand and the EU, the relevant countries of this research. The model is specially designed to focus on New Zealand and its main trading partners. The EU is represented as a single entity in the model. As the EU is the third largest trading partner to New Zealand, the model includes EU country-specific quotas for New Zealand. Therefore, policies and trade liberalisation between the EU and New Zealand can be explicitly modelled by the LTEM.

In the LTEM the agricultural sector is divided into 23 commodities. The model includes particular agricultural products such as beef and sheepmeat, dairy products such as butter, cheese, skim and whole milk powder, kiwifruit, apples and wine, all of which are the most important exports of New Zealand and the most protected products within the EU. Furthermore,

the LTEM allows the user to add new variables, equations, policies and data into the structure of the model and in this way, provides flexibility.

This chapter describes in detail the features of the selected partial equilibrium model, followed by an explanation of how the model was extended to simulate the impacts of an FTA between the EU and New Zealand. Lastly, the description of scenarios simulated by the model is presented.

6.2 The LTEM structure

The LTEM is a multi-commodity, multi-country partial equilibrium model that focuses primarily on the agricultural sector (Cagatay & Saunders, 2003); the relationship of the agricultural sector with other industries are not considered in the model. The LTEM was developed by the Agribusiness and Economics Research Unit and is based on the VORISM model created in the United States of America (USA) for the Uruguay Round (Saunders & Roningen, 2001; Roningen, 1986). Currently, the LTEM includes 23 countries and 23 commodities. The dairy sector is desegregated to five products: liquid milk, skim milk powder, whole milk powder, butter and cheese, while the meat industry is divided into sheep, beef and pork meat and poultry. Eight crop commodities are included: wheat, maize, other grains, oilseeds, oil meals, oils, rice and sugar. Products are represented as homogeneous in the model and are perfect substitutes in consumption. Physical characteristics of commodities, country of origin and export destination are not considered. The country and product coverage of the model are represented in Table 6.1 and Table 6.2.

Table 6.1: Country coverage in the Lincoln Trade and Environment Model

Australia	**Argentina**	**Brazil**	**Canada**	**Chile**
China	**The European Union**	**India**	**Indonesia**	**Japan**
The Republic of Korea	**Mexico**	**New Zealand**	**Norway**	**Paraguay**
Russia	**Singapore**	**South Africa**	**Switzerland**	**The United States of America**
Turkey	**Uruguay**	**Rest of the World**		

Source: The Lincoln Trade and Environment Model (LTEM).

Table 6.2: Commodity disaggregation in the Lincoln Trade and Environment Model

Wheat	**Maize**	**Other Grains**	**Rice**	**Sugar**
Oilseeds	**Oilseed meals**	**Vegetables oils**	**Beef meat**	**Pork**
Sheepmeat	**Wool**	**Poultry**	**Eggs**	**Butter**
Cheese	**Whole milk powder**	**Skim milk powder**	**Liquid milk**	**Apples**
Kiwifruit	**Grapes**	**Wine**		

Source: The Lincoln Trade and Environment Model (LTEM).

The LTEM calculates the quantity and price impacts of consumption, production and trade and allows revenue effects to be calculated. It is a synthetic model because parameters are derived from literature. The model can calculate the price, quantity, supply, demand, producer returns and net trade effects of different policy scenarios. It can derive the medium- to long-term equilibrium policy impact in a comparative, static way from the base year.

The LTEM can also simulate the impact of changes in policy parameters and variables. There are two different ways to incorporate policy changes into the model: the first is through the supply function, which allows the simulation of supply related policies that are set-aside land policies, production quotas and aggregate reduction (Cagatay & Saunders, 2003); the second is through the price equations, which allow the simulation of different per unit producer and consumer supports and subsidy measures, as well as different per unit border policies and minimum price policies (Cagatay & Saunders, 2003). Bilateral trade policy can be incorporated into the model through modification to the supply, price and net trade equations of two countries. Those policy instruments used in the model for simulation of bilateral trade are trade quotas, in-quota tariffs and out-quota tariffs. Non-agricultural exogenous variables are gross domestic product and population. (For a detailed description of each of these policies, refer to Cagatay and Saunders (2003).) The incorporation of these policies into the model means that

different levels of bilateral liberalisation between the EU and New Zealand can be simulated, for example, a removal or increase in New Zealand's country-specific quotas for high-quality beef, sheepmeat, butter and cheese.

The LTEM solves for the commodity-based world market clearing price in each country based on domestic quantities and prices that may or may not be affected by policy changes. Excess domestic demand or supply in each country proceeds to the world market in order to determinate world prices. The world market-clearing price is determined at the level when the total excess supply and demand of each commodity is brought to zero. The LTEM structural framework includes six behavioural equations, with one economic identity for each product in each country. These behavioural equations are "domestic supply, domestic demand, domestic stock, domestic producer price function, domestic consumer price function and the trade price equation" (Cagatay & Saunders, 2003, p.11).

The net trade equation is a central economic identity and is equal to excess demand or supply in the domestic economy. The number of behaviour equations can be different for some commodities because total demand is disaggregated into food, feed and processing industry demand, which is determined endogenously (Cagatay & Saunders, 2003). Demand is a constant elasticity function of own and cross-price effects, per capita income and population growth rate. In the model framework, the interdependencies between primary and processed commodities and substitutes are indicated by cross-price elasticities. The domestic demand functions for each type of commodity are specified below:

Crops

Wheat and coarse grains

(1) $qd_{i,\,fot}\,(pc_{it}, pinc_t, pop_t, pc_{jt})$

Domestic food demand of wheat and coarse grains is a constant elasticity function of own and substitute prices, per capita income and population growth rate.

(2) $qd_{i,\,fet}\,(pc_{it}, pc_{jt,}\, qs_{qt})$

Domestic feed demand of wheat and coarse grains is a constant elasticity function of own and substitute prices and domestic supply of meat, poultry products and raw milk.

Oils and oilseeds

(3) $qd_{i,\,fot}\,(pc_{it}, pinc_t, pop_t, pc_{jt})$

Domestic food demand of oils and oilseeds is a constant elasticity function of own and substitute prices, per capita income and population growth rate.

(4) $qd_{i,\,fet}\,(pc_{it}, pc_{jt,}\, qs_{qt})$

Domestic feed demand of oils and oilseeds is a constant elasticity function of own and substitute prices and domestic supply of meat, poultry products and raw milk.

(5) $qd_{OS,\,prt}\,(pc_{OSt}, pp_{rt,})$

Domestic processing demand for oilseeds is a constant elasticity function of own prices and producer price of oil meals and oil.

Sugar and rice

(6) $qd_{i,\,fot}\,(pc_{it,}\, pinc_t, pop_{t)}$

Domestic demand of sugar and rice is a constant elasticity function of own price, per capita income and population growth rate.

Livestock products

Meat: beef and veal, sheepmeat and pig meat

(7) $qd_{it}\,(pc_{it}, pinc_t, pop, pc_{jt})$

Domestic demand of meat is a constant elasticity function of own and substitute prices, per capita income and population growth rate.

Dairy: liquid milk, butter, cheese, skim milk powder, whole milk powder

(8) $qd_{it}\,(pc_{it}, pinc_t, pop, pc_{jt})$

Domestic demand of dairy products is a constant elasticity function of own and substitute prices, per capita income and population growth rate.

Poultry: eggs, poultry meat

(9) $qd_{it}\ (pc_{it}, pinc_t, pop, pc_{jt})$

Domestic demand of poultry meat and eggs is a constant elasticity function of own and substitute prices, per capita income and population growth rate.

Variables and parameters:

i: own commodity
j: substitutes
pc: consumer price
pop: population
pinc: per capita income
pp_r: producer price of oil meals and oil
qd_{fe}: domestic food demand
qd_{fe}: domestic feed demand
qd_{OS}: domestic processing demand for oilseeds
qs_q: domestic supply of meat, poultry products and raw milk

In the model framework, domestic supply is specified as a function of own and cross-prices for each commodity and country and each product has a uniform aggregate domestic supply function. Global agricultural markets are assumed to be perfectly competitive because an agricultural product is presumed to be homogenous; therefore, the agricultural sector is interpreted as a single multi-product farm (Cagatay & Saunders, 2003). Producer price (pp_{it}) is the domestic price for producers of commodity *i* and pp_{jt} is an input, product substitute or both, or is the complement producer price for commodity *i* (Cagatay & Saunders 2003). The domestic supply function for each type of commodity are specified below:

Crops

Wheat, coarse grains, oils and oilseeds, sugar and rice

(10) $qs_{it}\ (pp_{it}, pp_{jt})$

Domestic supply of wheat, coarse grains, oils, oilseeds, sugar and rice is a function of own and substitute prices.

Livestock products

Meat: beef and veal, sheepmeat and pig meat

(11) $qs_{it}\ (pp_{it}, pp_{jt}, pc_{kt})$

Domestic supply of meat is a function of own and substitute prices and consumer price of feed products.

Dairy: raw milk

(12) $qs_{it}\ (pp_{it}, pp_{jt}, pc_{kt})$

Domestic supply of raw milk is a function of own and substitute prices and consumer price of feed products.

Dairy: liquid milk, butter, cheese, skim milk powder, whole milk powder

(13) $qs_{it}\ (pp_{it}, qs_{RMt}, pc_{jt})$

Domestic supply of dairy products is a function of own and substitute prices and domestic supply of raw milk.

Poultry: eggs, poultry meat

(14) $qs_{it}\ (pp_{it}, pc_{jt}, pc_{kt})$

Domestic supply of poultry meat and eggs is a function of own and substitute prices and consumer price of feed products.

Variables and parameters:

i: own commodity
j: substitutes
k: feed products
qs: domestic supply
pp: producer price
pc: consumer price

In the LTEM, stocks are defined as the stock of the current year (quantity supplied minus amount demanded) and the stock from the previous year, as shown in Equation 15. There is no

stock for raw milk and liquid milk, as it is assumed in the model that raw milk is all used in the production of butter, cheese and milk powder (Cagatay & Saunders, 2003), therefore it is stocked in the form of these three goods.

Crops

Wheat, coarse grains, oils and oilseeds, sugar and rice

Livestock products

Meat, dairy, poultry

(15) $t_{it}^{t=0} = (qs_{it} - qd_{it})\ st_{it}^{t-1}$

Variables and parameters:

i: own commodity

qs: domestic supply

qd: domestic demand (can be food, feed or processing)

st: stocks

pc: consumer price

The net trade for a commodity and a country is defined as the difference between domestic supply and the sum of various domestic demand amounts and stock changes in the related year, as shown in Equation 16.

Crops

Wheat, coarse grains, oils and oilseeds, sugar and rice

Livestock products

Meat, dairy, poultry

(16) $qt_{it} = qs_{it} - (qd_{i,\,fot} + qd_{i,\,fet} + qd_{i,prt}) - (\Delta st_{it})$

Variables and parameters:

i: own commodity
j: substitutes
qs: domestic supply
qd_{fe}: domestic food demand
qd_{fe}: domestic feed demand
qd_{prt}: domestic processing demand
st: stocks
qt: the net trade

The trade price of a product in a country is determined by the world market price of the commodity and the exchange rate, as shown in Equation 17.

(17) $pt_{it}\ (WDp_{it}, ex_e)$

Variables and parameters:

i: own commodity
pt: trade price
WDp: world price
ex: exchange rate

Domestic consumer and producer prices are defined as functions of the trade price for each product and the level of government support as shown in Equations 18 and 19. Government supports are product specific production and consumption-related domestic support policies and represent price wedges (Cagatay & Saunders, 2003). Price wedges depend on domestic policies. Examples of these policies are import tariffs, input subsidies, export subsidies, general services expenditure, market price support to the producer, per unit direct payment and consumer market subsidies.

(18) $pc_{ij}\ (pt_{ij}, gd_i)$

(19) $pp_{ij}\ (pt_{ij}, gs_{i)}$

Variables and parameters:

i: own commodity

pt: trade price

pc: consumer price

pp: producer price

gd_i: consumer support wedges

gs_i: producer support wedges

6.3 Modelling policy changes: bilateral trade in the LTEM

The LTEM is a non-bilateral trade model and it is mostly used for calculating the net trade of commodities in each country rather than bilateral trade flows. The model applies one average tariff for each product group and country for goods imported from all trade partners. It treats all products within each commodity as homogenous. Therefore, it is not possible to model tariffs for bilateral trade that are separate from tariffs generally applied to given commodities.

In order to simulate the economic effects of the potential FTA agreement between New Zealand and the EU as well as different liberalisation levels of the agricultural sector, each commodity for the EU and New Zealand in the model has been divided into two sub-commodities. The first is comprised of products traded between New Zealand and the EU; the second is products that can be traded worldwide. The two sub-commodities are assumed to be perfect substitutes and other than price and supply, no preference for either sub-product is considered. It is assumed that New Zealand can produce for both global trade and for the EU market and the same is assumed for the EU (that it provides for New Zealand's market and for the world), based on relative trade prices. New Zealand consumes commodities from the EU and from the world. In the same way, EU consumption is divided in two sub-commodities. In this way, the model is clearing two markets: trade between New Zealand and the EU and other global trade. The LTEM database was updated to divide EU production for and consumption from New Zealand and all the other countries. The same was done for New Zealand production and consumption. This method of dividing commodities has been used before with the LTEM to model the preferential access in bilateral trade between the EU and Mercosur (Revell et al., 2014) and the

EU and New Zealand liberalisation (Saunders et al., 2016). The trade data for various years were obtained from the Food and Agriculture Organization of the United Nations Statistic.

Production and consumption are assumed to be segregated into bilateral trade and non-bilateral trade products. Therefore, the supply function of a bilateral trade commodity x (qsb_x) is determined as:

(20) $qsb_x\ (sft_{sb}, ppb_x, ppb_y, pp_x)$

The supply function of a non-bilateral trade commodity x (qs_x) is determined as:

(21) $qs_x\ (sft_s, pp_x, ppb_x, pp_y)$

Variables and parameters:

sft_{sb}: supply side shifters
b: commodity bilaterally traded
ppb_x: producer price of the bilateral trade commodity
ppb_y: producer price of the other substitute b products y
pp_x: producer price of the non-bilateral product x

In the model, demand is desegregated into food, feed and processing demand. Food demand for bilateral and non-bilateral trade commodities are presented in Equations 22 and 23.

(22) $qcb_x\ (sft_{cb}, pcb_x, pc_x, pcb_y, pop, pinc)$

(23) $qc_x\ (sft_c, pc_x, pcb_x, pc_j, pinc, pop)$

Variables and parameters:

sft_{cb}: demand side shifters
b: commodity bilaterally traded
pcb_x: consumer price of the bilateral trade commodity
pcb_y: consumer price of the other substitute b products y
pc_x: consumer price of the non-bilateral product x
pop: population
pinc: per capita income

This approach provides a way to analyse bilateral trade in a partial equilibrium framework. Bilateral policies such as trade quotas and in- and out-quota tariff rates can be incorporated into the model by integrating changes in the supply, price and net trade equations of any two countries. The constraint can be placed on the maximum incoming trade allowed by a country in order to implement quotas in the model. Most commonly these limitations are for the aggregated imports from all countries. However, these can be used to model restrictions between the EU and New Zealand. As each commodity for the EU and New Zealand has been divided into two sub-commodities, this allows for different quotas to be applied. Similarly, various tariff rates can be applied to two distinct groups of sub-commodities.

As a simulation model, the LTEM model helps to address "what if" questions, simulating market equilibriums on markets under different assumptions. The baseline for the model is the equilibrium before the policy change and the scenario is the equilibrium after the policy change. Various policy scenarios can be modelled by modifying the values of the exogenous variables. The base year of the LTEM is 2012, calculating up to 2024. The supply and demand equations are parameterised to reproduce 2012 base period data for each country's demand, supply, price and trade. When producer and consumer support wedges are changed, the model recalculates domestic demand, supply, production, consumption and prices and re-calculates world trade (Cagtay & Saunders, 2003).

6.4 Policy scenarios

This section presents the four scenarios that were developed to simulate the economic effects of the FTA agreement between New Zealand and the EU. They assume different liberalisation levels of the bilateral trade in agricultural commodities. Table 6.3 summarises the four scenarios. In addition, each scenario is individually described and the reasons for their inclusion are discussed.

Table 6.3: Description of modelling scenarios

Scenarios	Policy type	Details	
B	**Base**	Current policies are assumed unchanged	
1	**Full liberalisation**	Complete removal of all barriers between the EU and New Zealand	
2	**The most realistic outcome of the FTA**	New Zealand	The EU
		Wine and poultry subject to five year phase-out period All other tariffs immediately removed	Keeps New Zealand county-specific quota and removes all customs duties inside them Poultry, eggs and dairy excluded All other tariffs removed over seven years
3	**The most protective towards its FTA agreement**	Wine and poultry subject to five year phase-out period The dairy subject to five year phase-out period All other tariffs immediately removed	New Zealand county-specific quotas removed In-quota tariff on beef removed over seven years Poultry, eggs, dairy goods and wine excluded All other tariffs removed over seven years
4	**The CETA case**	Wine and poultry subject to five year phase-out period All other tariffs immediately removed	Keeps beef quota with removal of in-quota duty Additional duty-free quota for beef New Zealand county-specific sheep, cheese and butter quota removed Dairy sector immediately liberalised Poultry and eggs excluded Kiwifruit and wine immediately liberalised

6.4.1 Baseline scenario

The baseline or 'business as usual' scenario is the projection of the equilibrium before the policy change, based on the current exogenous variables in the model. This scenario assumes that current production systems and policies are in place. The present bilateral trade barriers between the EU and New Zealand were presented in Chapter 3. The LTEM contains tariffs and quotas taken from several international sources and databases (New Zealand Customs Service, 2017; Statistics New Zealand, 2017; TARIC, 2017; WTO, 2015a). Table 6.4 shows the baseline tariffs for bilateral trade between the EU and New Zealand.

Table 6.4: Tariffs and duties to New Zealand and European Union commodities

Countries/commodities	The European Union		New Zealand	
	Ad valorem tariff	Duties US$/t	Ad valorem tariff	Duties US$/t
Wheat	0%	-	0.0%	-
Maize	0%	-	0.0%	-
Other Grains	3.2%	-	0.0%	-
Rice	7.7%	-	0.0%	-
Sugar	0%	557	0.0%	-
Oilseeds	1.6%	-	0.0%	-
Oilseed meals	1.3%	-	0.0%	-
Vegetables oils	6.5%	-	5.0%	-
Beef and veal	20.0%	-	0.0%	-
Pork	19.1%	-	5.0%	-
Sheepmeat	0.0%	-	0.0%	-
Wool	0.0%	-	0.0%	-
Poultry	0%	400	5.0%	-
Eggs	7.7%	-	0.0%	-
Butter	0.0%	905	0.0%	-
Cheese	0.0%	221	0.0%	-
Whole milk powder	0.0%	1729	5.0%	-
Skim milk powder	0.0%	632	5.0%	-
Apples	0.0%	1490	0.0%	-
Kiwifruit	8.5%	-	0.0%	-
Grapes	14.5%	-	0.0%	-
Wine	0%	425	5.0%	-

Source: own compilation based on New Zealand Customs Service, 2017; Statistics New Zealand, 2017; TARIC, 2017; WTO, 2015a.

As discussed in detail in Chapter 2, New Zealand has preferential access to the EU market for its high-quality beef, sheepmeat, cheese and butter through quotas. These quotas were integrated into the model.

The New Zealand-specific tariff rate quota for high-quality beef is 1,300 tonnes by product weight. Ad valorem duty of 20 percent applies within the quota. Apart from this, New Zealand's export of frozen beef is treated under the EU most-favoured-nation quota, which is 53,000 tonnes within 20 percent of ad valorem tariff (Commission Implementing Regulation (EU), 2001). The country-specific quota integrated into the model is 11,000 tonnes. The reasoning behind it was to take the quantity traded in the base year as the cap for the maximum possible quantity exported from New Zealand because the tariff is the same for country-specific quota

and the EU most-favoured-nation quota. The country-specific quota for New Zealand's sheep and goat meat accounts for 228,254 tonnes on an annual basis at zero duty (Commission Implementing Regulation (EU), 2011). A specific butter quota for New Zealand is 74,693 metric tonnes and the in-quota tariff is €70 per 100 kilograms. There are two country-specific tariff rate quotas for New Zealand cheeses: for cheese for processing, it is 4,000 tonnes; for whole cheddar cheese it is 7,000 tonnes. In total, the combined volume of 11,000 metric tonnes per year is allowed and the in-quota tariff rate is €17.06 per 100 kilograms for both products (Commission Implementing Regulation (EU), 2013).

The baseline year of the model is 2012, calculating up to 2024. Other scenarios model different changes to tariffs and quotas based on assumptions made in Chapter 2. Chapter 2 provides an analysis of the New Zealand and EU strategies in their recently concluded FTAs with third parties with a detailed consideration of agriculture. This analysis investigates how agriculture was addressed and what liberalisation schedules of particular agricultural products were used. These products represent the most significant exports from New Zealand and the most protected products within the EU and are all covered by the model. The analysis assisted in identifying the possible individual position of both countries during FTA negotiations and formulating scenarios.

6.4.2 Scenario 1 - Full liberalisation

This scenario assumes full trade liberalisation of the agricultural sector between the EU and New Zealand. This is an extreme case and is unlikely to be the final outcome of the FTA negotiations. However, this scenario can indicate the greatest economic impacts of the FTA. Scenario 1 assumes that all tariffs and customs duties applied to trade between the two partners would be immediately removed in 2017.

The share of EU production exported to New Zealand is very small. As presented in Chapter 2, the EU exported to New Zealand less than 0.5 percent of its total agricultural product exports analysed in this thesis. On the other hand, the share of New Zealand production shipped to the EU market is relatively large. For example, New Zealand exported to the EU almost 35 percent of its total sheepmeat and wine exports in 2013. The numbers for the other agricultural products analysed in this thesis are also relatively high, as described in Chapter 2. New Zealand tariffs are very low on EU imports, while EU tariffs are relatively high for New Zealand exports. Other

existing country-specific quotas restrict trade even more. Therefore, it is expected that the impact of full bilateral liberalisation will be more significant for New Zealand's exports (which are expected to grow) while for the EU, exports into New Zealand would be minor, although EU consumers would benefit from lower prices of the same products. The impact of this scenario on producer prices, producer returns and quantity produced in the EU is expected to be minor across all commodities, because the EU already has duty-free access to the New Zealand market for the analysed commodities (apart from a few products that currently face a tariff of five percent, which is relatively small).

6.4.3 Scenario 2 - The most realistic outcome of the FTA

In this scenario, New Zealand liberalises all agricultural products immediately in 2017, apart from wine and poultry which are subject to a five year tariff phase-out. This assumption is based on the analysis of New Zealand's tariff elimination schedules under its FTAs (discussed in Chapter 3). On another hand, New Zealand already has preferential access to the EU market through country-specific quotas, presented in detail in Chapter 2. This scenario assumes that the EU keeps its current country-specific tariff quotas for New Zealand's high-quality beef, sheepmeat, butter and cheese and immediately removes all customs duties inside them in 2017. All other tariffs on New Zealand products, including kiwifruit and wine products, are eliminated gradually over seven years. This scenario models that the EU excludes poultry and other dairy products from liberalisation, an assumption based on analysis of the EU's existing FTAs.

As New Zealand tariffs are already very low and some products are duty-free, significant changes on the side of the EU are not expected. In light of the smaller reductions in tariffs and quotas still in place, the outcome for New Zealand was also expected to be lower than under full liberalisation. Previous expectations were that New Zealand would experience an increase in kiwifruit and wine exports to the EU and hence production.

6.4.4 Scenario 3 - The most protective towards its FTA agreement

This scenario assumes that New Zealand protects its dairy industry and models that New Zealand gradually removes tariffs on its dairy products. New Zealand has never protected its dairy sector in any FTAs. However, none of its FTA trade partners have been large producers or exporters of dairy products and most countries have protected their own dairy industries in

agreements with New Zealand. In negotiating the FTA with China, New Zealand protected its wine sector despite the fact that China does not export wine to New Zealand. The reasoning for that could be that China is the eighth largest global wine producer. Based on this and the fact that the EU is a large manufacturer and exporter of dairy products, the scenario assumes that New Zealand keeps its tariffs on milk powder.

In this scenario, it is simulated that New Zealand immediately liberalises all agricultural products in 2017, apart from dairy products, wine and poultry which are subject to five year tariff phase-outs. Because butter, cheese and eggs are duty-free already, this scenario models a gradual removal of five percent tariffs on skimmed milk powder and whole milk powder over five years. Every year there is a rate reduction of one percent, starting in 2017.

It is simulated that the EU excludes poultry, eggs, wine and all dairy products from liberalisation, which means that tariffs and duties on these products stay in place. It is assumed that the EU removes its current country-specific tariff quotas for New Zealand's high-quality beef, sheepmeat, butter and cheese. The in-quota tariff of 20 percent on high-quality beef is gradually removed over seven years, while duties of US$905 per tonne on butter and US$221 per tonne on cheese continue to apply. All other tariffs on New Zealand products, including kiwifruit and wine products, are eliminated gradually over seven years.

In the light of the highest level of protectionism, the changes in producer prices, producer returns and quantity produced in the EU and New Zealand are expected to be the smallest in comparison to the other scenarios. The expectation for this scenario is that New Zealand would experience an increase in kiwifruit and wine production and export to the EU.

6.4.5 Scenario 4 - The CETA case

This scenario is based on the analysis of EU negotiations in its FTA with Canada, hence it is named the CETA case scenario. The CETA is one of the most recent agreements concluded by the EU, and Canada and New Zealand are very similar regarding colonial history, production and trade of agricultural commodities. This scenario therefore assumes that the EU would have the same approach in negotiating the FTA with New Zealand. It is assumed that the EU's existing country-specific tariff quota for New Zealand's high-quality beef of 1,300 tonnes will be kept, with the immediate removal of the current in-quota duty of 20 percent. In addition, the EU would introduce an additional duty-free quota for a total importation of an aggregate

quantity of beef and veal of 6,000 tonnes of carcass weight, being reached in the sixth year of the agreement being in force. This would not be subject to further increase. The quota includes 4,000 tonnes carcass weight for fresh, chilled product and 2,000 tonnes of carcass weight for frozen or other beef and veal products. The quantity of additional quota for New Zealand in this scenario was calculated based on the proportion of the EU's existing WTO tariff quota for Canada in the additional quota granted by CETA. Furthermore, this scenario assumes that the EU liberalises sheepmeat entirely and removes the country-specific quota for New Zealand's sheep and goat meat, which currently accounts for 228,254 tonnes on an annual basis at zero duty. However, even if the EU removed the country-specific quota and completely liberalised sheepmeat within an FTA with New Zealand, it is doubtful that New Zealand export would sharply increase over the current quota. In this scenario, the EU liberalises all dairy tariff lines when the FTA entries into force and the same is assumed for kiwifruit and wine. The EU excludes poultry and eggs from liberalisation. This scenario assumes that New Zealand immediately liberalises all agricultural products, apart from wine and poultry which are subject to five year tariffs phase-outs.

6.5 Conclusion

This chapter presented the methodology used in this study. The features of the selected partial equilibrium model, the LTEM, the reasons for the model selection and its limitations were discussed. This was followed by a brief explanation of how the model was extended to simulate the economic effects of the FTA between the EU and New Zealand. The LTEM is mostly used for calculating net trade of commodities in each country, rather than bilateral trade flows. The model applies one average tariff for each product group and country for goods imported from all trade partners. Therefore, tariffs and quotas on bilateral trade were obtained and integrated into the model. Furthermore, each commodity for the EU and New Zealand was divided into two sub-commodities. The LTEM database was updated to 2012 to split the EU production and consumption for New Zealand and all other countries. The same was done for New Zealand production and consumption. Different scenarios were developed to assess potential impacts of the FTA, assuming various changes in tariffs and quotas based on the analysis of New Zealand and EU strategies in their recently concluded FTAs with third party countries. The LTEM

model was used to simulate the scenarios described at the end of this chapter. The following chapter presents the results from the LTEM modelling exercise, including changes in producer returns, producer price, quantity produced and net trade for the EU and New Zealand.

Chapter 7
Model results and analysis

7.1 Introduction

This chapter presents the results of the Lincoln Trade and Environmental Model (LTEM) used to simulate the policy scenarios described in Chapter 5. These simulations were conducted in order to achieve one of the objectives of the thesis, which was to calculate the impacts of a free trade agreement (FTA) agreement between New Zealand and the European Union (EU). Policy scenarios assumed different liberalisation levels of the bilateral trade in agricultural commodities. (These are described in detail in Chapter 5.) The results are presented as the comparison between the new equilibrium to the base equilibrium after all changes to trade barriers have been made and world markets have cleared (Roningen, 1997). The results for each scenario are presented and discussed in comparison with the base scenario in 2024.

While the model produced a considerable volume of results for 23 commodities and 23 countries, the presentation of results is limited to those directly relevant to this study. As this research is focused particularly on a FTA between the EU and New Zealand, only results for those two countries are presented with regards to the most relevant bilateral-traded agricultural products, and the most protected. The selected economic variables of producer price, producer returns, quantity produced and net trade are presented and discussed. Producer prices represent the price that producers receive per tonne produced. Producer returns are equal to the quantity produced multiplied by the producer price per tonne. Quantity produced refers to total amount of product produced in one country. Net trade is the quantity imported or exported and is calculated as the difference between production and consumption; a positive value shows that the product is a net export while a negative value indicates that the product is a net import. The results are presented as values and percentage changes. Prices are displayed in US$ per tonne and quantities are shown in thousands of tonnes. Summary tables of results are displayed below.

7.2 Scenario 1 - Full liberalisation

This scenario assumed full trade liberalisation of agricultural commodities between the EU and New Zealand. It is assumed that all tariffs, customs duties and quotas applied to trade between the two partners were removed, beginning in the year 2017 and continuing out to 2024, while all policies towards the rest of the world in the model remained unchanged. This is an extreme case and is unlikely to be the final outcome of the FTA negotiations; however, this scenario indicates the greatest potential impacts of the FTA.

The impact of this scenario on producer prices in the EU is minor for all commodities, as shown in Table 7.1. Producer prices are predicted to stay almost unchanged for meat products (including beef, pork, sheepmeat and poultry) and wool. Producer prices for dairy products are expected to remain virtually unchanged. Producer prices for apples and kiwifruit stay almost unchanged with an increase of no more than one percent, while grapes are estimated to experience the greatest increase of almost US$26 per one tonne, which is equal to 1.34 percent. Wine producer prices are expected to increase by 1.29 percent. Producer prices stay relatively unchanged due to the fact that EU exports to New Zealand are low and because the EU already has duty-free access to the New Zealand market for analysed commodities apart from pork, eggs, whole milk powder, skim milk powder and wine, which currently face a relatively small tariff of five percent.

New Zealand producers experience reasonable gains under the full liberalisation scenario. Apple producer prices are expected to be 30 percent higher in this scenario than in the business-as-usual scenario. This increase can be explained by a high EU import duty of €122.50 per 100 kilograms on apples. Wine producer prices are estimated to be nine percent greater, while kiwifruit prices increase by almost two percent. The butter and cheese producer prices are anticipated to increase by 1.22 and 0.12 percent respectively. Beef prices are expected to increase by 0.18 percent. New Zealand faces relatively high tariffs and duties on these commodities in the EU market; therefore, once these goods are liberalised producer prices increase. The sheepmeat price is unchanged, which is anticipated because the New Zealand country-specific quota is not fulfilled with a zero tariff. Table 7.1 summarises the results in producer prices for New Zealand goods.

Table 7.1: Change in producer prices in US$ per tonne between baseline and full liberalisation scenario in 2024

Commodity	The EU				New Zealand			
	Base	Scenario 1	Change	% Change	Base	Scenario 1	Change	% Change
Beef	5,265.8	5,265.8	0.0	**0.00%**	3,161.7	3,167.4	5.7	**0.18%**
Pigmeat	2,172.9	2,172.8	-0.1	**0.00%**	3,776.2	3,776.3	0.1	**0.00%**
Sheepmeat	6,691.6	6,691.4	-0.2	**0.00%**	4,359.9	4,359.8	-0.1	**0.00%**
Wool	1,545.5	1,545.5	0.0	**0.00%**	3,032.9	3,032.9	0.0	**0.00%**
Poultry	2,816.8	2,815.4	-1.4	**-0.05%**	2,911.2	2,909.8	-1.4	**-0.05%**
Eggs	3,883.6	3,883.5	-0.1	**0.00%**	4,541.6	4,541.5	-0.1	**0.00%**
Butter	5,265.8	5,265.8	0.0	**0.00%**	5,648.9	5,718.0	69.9	**1.22%**
Cheese	3,746.2	3,746.5	0.3	**0.01%**	5,198.4	5,204.4	6.0	**0.12%**
Whole Milk Powder	3,139.5	3,140.7	1.2	**0.04%**	4,289.9	4,292.3	2.4	**0.06%**
Skim Milk Powder	2,536.5	2,537.0	0.5	**0.02%**	3,927.9	3,928.7	0.8	**0.02%**
Apples	1,517.3	1,517.5	0.2	**0.01%**	757.1	988.4	231.3	**30.54%**
Kiwifruit	2,264.4	2,268.7	4.3	**0.19%**	1,340.4	1,363.5	23.1	**1.73%**
Grapes	1,910.6	1,936.2	25.6	**1.34%**	1,993.7	2,020.4	26.7	**1.34%**
Wine	786.6	796.8	10.2	**1.29%**	1,698.9	1,856.5	157.6	**9.27%**

Table 7.2 below shows that in the case of full bilateral liberalisation, production of products in the EU would stay almost unchanged. Production of grapes, poultry and cheese and whole milk is expected to increase marginally by 0.6 percent, 0.43 percent and 0.1 percent, respectively. Wine is expected to decrease by 1.09 percent.

New Zealand is predicted to experience changes in the production of the majority of the analysed commodities. For example, apple production is projected to experience the most significant increase of 57 percent. This occurs because of the removal of the EU's duty on apples, resulting in an increase in producer price. New Zealand's wine sector is expected to increase by almost 13 percent, due to the removal of duty on wine and higher prices for wine on the EU market than in the rest of the world, resulting in increased production of wine for the EU market. Production of other New Zealand goods stays relatively unchanged, though a minor change in butter production, is estimated, with an increase of 2.22 percent. A slight increase in New Zealand dairy and beef production can be explained by the fact that producer prices for

these products stay almost unchanged; therefore, New Zealand producers would not be stimulated to produce more.

Table 7.2: Change in production in thousands of tonnes between baseline and full liberalisation scenario in 2024

Commodity	The EU				New Zealand			
	Base	Scenario 1	Change	% Change	Base	Scenario 1	Change	% Change
Beef	8,940	8,939	-1	**0.00%**	734	737	3	**0.30%**
Pigmeat	25,785	25,783	-2	**-0.01%**	59	59	0	**0.01%**
Sheepmeat	1,091	1,091	0	**0.00%**	569	569	0	**0.00%**
Wool	207	207	0	**0.00%**	176	176	0	**0.00%**
Poultry	15,692	15,759	66	**0.43%**	237	237	0	**0.00%**
Eggs	8,578	8,577	-1	**0.00%**	75	75	0	**0.00%**
Butter	2,881	2,880	-1	**-0.03%**	587	600	13	**2.22%**
Cheese	10,063	10,074	11	**0.10%**	370	369	-1	**-0.11%**
Whole Milk Powder	757	758	1	**0.10%**	1,260	1,261	2	**0.14%**
Skim Milk Powder	1,204	1,204	0	**0.00%**	616	616	0	**0.00%**
Apples	13,320	13,320	0	**0.00%**	546	858	312	**57.25%**
Kiwifruit	803	804	1	**0.08%**	480	478	-2	**-0.44%**
Grapes	24,699	24,846	147	**0.60%**	416	419	3	**0.75%**
Wine	18,780	18,575	-205	**-1.09%**	328	372	44	**13.33%**

Impacts on producer returns for the EU and New Zealand are shown in Table 7.3. Total producer returns for all products in the LTEM are estimated to increase by 3.3 percent for New Zealand producers, while a slight increase of 0.35 percent is expected for EU producers. In the EU, producer returns for agricultural commodities are expected to stay almost unchanged, although producer returns for grapes, poultry and kiwifruit are estimated to increase by approximately two percent, 0.38 percent and 0.27 percent, respectively. In New Zealand, the largest growth in producer returns is expected for apples, at 105 percent. This significant change in apple returns is due to the rise in producer price and quantity produced caused by the removal of the current heavy customs duty. The New Zealand wine industry is estimated to have an increase in producer returns of almost 24 percent relative to the base scenario. This change is due to the removal of the tariff followed by an increase of New Zealand production and an increase in the price winemakers are paid. New Zealand producers are also expected to have a

slight increase (3.47 percent) in producer returns of butter as a result of a slight increase in producer price and quantity produced caused by the removal of the quota and the high duty on butter.

Table 7.3: Change in producer returns in millions of US$ between baseline and full liberalisation scenario in 2024

Commodity	The EU				New Zealand			
	Base	Scenario 1	Change	% Change	Base	Scenario 1	Change	% Change
Beef	47,077	47,076	-1	**0.00%**	2,322	2,333	11	**0.48%**
Pigmeat	56,028	56,022	-6	**-0.01%**	222	223	1	**0.01%**
Sheepmeat	7,302	7,301	-1	**-0.01%**	2,481	2,480	-1	**-0.01%**
Wool	320	320	0	**0.00%**	535	535	0	**0.00%**
Poultry	44,201	44,369	168	**0.38%**	691	690	-1	**-0.09%**
Eggs	33,313	33,312	-1	**0.00%**	344	344	0	**0.00%**
Butter	11,957	11,949	-8	**-0.07%**	3,318	3,433	115	**3.47%**
Cheese	37,699	37,741	42	**0.11%**	1,925	1,926	1	**0.01%**
Whole Milk Powder	2,378	2,381	3	**0.14%**	5,405	5,416	11	**0.20%**
Skim Milk Powder	3,056	3,057	1	**0.02%**	2,419	2,420	1	**0.02%**
Apples	20,211	20,214	3	**0.01%**	413	848	435	**105.3%**
Kiwifruit	1,819	1,824	5	**0.27%**	644	652	8	**1.27%**
Grapes	47,190	48,108	918	**1.94%**	829	846	17	**2.09%**
Wine	14,773	14,801	28	**0.19%**	557	690	133	**23.84%**
Total	327,331	328,480	1,149	**0.35%**	22,110	22,840	730	**3.30%**

Regarding bilateral net trade, in this scenario New Zealand's exports are expected to increase across almost all commodities. The most significant increase, 423 thousand tonnes, is expected in the exports of apples from New Zealand to the EU. An increase of almost 60 thousand tonnes in the export of wine from New Zealand is also predicted. New Zealand exports to the EU are also predicted to increase by 17 thousand tonnes and 10 thousand tonnes for butter and kiwifruit respectively, while a smaller increase of three thousand tonnes is estimated for beef. While exporting more of these products to the EU, New Zealand does not alter the fact that the EU is a net exporter. Table 7.4 shows changes in net trade between the EU and New Zealand: negative numbers stand for net imports and positive figures indicate for net exports. A complete bilateral

liberalisation of all commodities in the LTEM therefore has implications for patterns of bilateral trade.

Table 7.4: Change in bilateral net trade in thousands of tonnes between baseline and full liberalisation scenario in 2024

Commodity	The EU				New Zealand			
	Base	Scenario 1	Change	% Change	Base	Scenario 1	Change	% Change
Beef	-11	-14	**-3**	23.73%	11	14	**3**	23.73%
Pigmeat	15	13	**-2**	7.85%	-15	-13	**2**	7.85%
Sheepmeat	-138	-138	**0**	0.00%	138	138	**0**	0.00%
Wool	-21	-21	**0**	0.00%	21	21	**0**	0.00%
Poultry	0	0	**0**	0.00%	0	0	**0**	0.00%
Eggs	0	0	**0**	0.00%	0	0	**0**	0.00%
Butter	-50	-67	**-17**	32.58%	50	67	**17**	32.58%
Cheese	-9	-11	**-2**	11.57%	9	11	**2**	11.57%
Whole Milk Powder	-1	-4	**-3**	137.4%	1	4	**3**	137.4%
Skim Milk Powder	0	0	**0**	0.00%	0	0	**0**	0.00%
Apples	-118	-541	**-423**	357.3%	118	541	**423**	357.3%
Kiwifruit	-169	-179	**-10**	5.41%	169	179	**10**	5.41%
Grapes	0	0	**0**	0.00%	0	0	**0**	0.00%
Wine	-84	-144	**-60**	71.32%	84	144	**60**	71.32%

7.3 Scenario 2 - The most realistic outcome of the FTA

This scenario presents the most realistic outcome of the negotiations. In this scenario, New Zealand liberalises all agricultural products immediately in 2017 (apart from wine and poultry, which are subject to a five year tariff phase-out). This scenario assumed that the EU keeps its current country-specific tariff quotas for New Zealand's high-quality beef, sheepmeat, butter and cheese but removes all customs duties within those quotas in 2017. All other tariffs on New Zealand products, including kiwifruit and wine, are eliminated gradually over seven years. In addition, this scenario assumed that the EU would exclude poultry and other dairy products from liberalisation.

Percentage changes in producer prices from the base scenario compared to this scenario for the EU and New Zealand can be seen in Table 7.5 below. The impact of this scenario on producer prices in the EU is minor; as anticipated, most producer prices are predicted to stay almost unchanged to a slightly smaller extent than in the previous scenario. Wine producer price is estimated to increase by 1.42 percent, which is the greatest change across all products. Producer prices remain almost unchanged because EU products do not currently face tariffs for most analysed commodities when exported to New Zealand (apart from pork, eggs, whole milk powder, skim milk powder and wine, which currently face a relatively small tariff of five percent). In this scenario, it was simulated that tariffs on poultry and wine would phase-out over five years. The five percent tariffs on both products would decrease by one percent every year, starting in 2017. The tariffs are eliminated by 2021 and therefore there is almost no difference in percentage change in producer prices for wine and poultry in 2024 between this scenario and the full liberalisation scenario.

As expected, New Zealand producers are expected to experience reasonable gains under this more realistic scenario, although to a slightly lesser extent than in the full liberalisation scenario. Producer prices are expected to remain unchanged for beef and sheepmeat, which can be explained by quotas on beef meat and sheepmeat. Producer prices of whole milk powder, skim milk powder, poultry and eggs are expected to stay unchanged as the result of the exclusion of these products from liberalisation. Butter producer price is anticipated to increase by 1.39 percent and cheese by 0.16 percent, due to the removal of the duty of US$905 and US$221 per tonne (respectively) within New Zealand's country-specific quota. Apple producer prices are expected to be almost 32 percent higher; as in the previous scenario, this increase can be explained by the high EU import duty of €122.50 per 100 kilograms on apples. Wine producer prices are estimated to increase by almost 10 percent. New Zealand exporters face relatively high tariffs and duties on these commodities in the EU market, therefore once tariffs on these goods are phased out altogether over seven years, they become tariff-free in 2024 and producer prices will increase.

Table 7.5: Change in producer prices in US$ per tonne between baseline and the most realistic outcome scenario in 2024

Commodity	The EU				New Zealand			
	Base	Scenario 2	Change	% Change	Base	Scenario 2	Change	% Change
Beef	1,454.1	1,454.1	0.0	**0.00%**	3,161.7	3,161.7	0.0	**0.00%**
Pigmeat	5,265.8	5,265.8	0.0	**0.00%**	3,776.1	3,776.2	0.1	**0.00%**
Sheepmeat	2,172.9	2,172.8	-0.1	**0.00%**	4,359.9	4,359.9	0.0	**0.00%**
Wool	6,691.5	6,691.5	0.0	**0.00%**	3,032.9	3,032.9	0.0	**0.00%**
Poultry	1,545.5	1,545.5	0.0	**0.00%**	2,911.2	2,910.8	-0.4	**-0.01%**
Eggs	2,816.7	2,816.4	-0.3	**-0.01%**	4,541.6	4,541.6	0.0	**0.00%**
Butter	4,150.6	4,152.4	1.8	**0.04%**	5,648.9	5,727.6	78.7	**1.39%**
Cheese	3,746.2	3,746.4	0.2	**0.01%**	5,198.4	5,206.8	8.4	**0.16%**
Whole Milk Powder	3,139.0	3,139.0	0.0	**0.00%**	4,289.9	4,289.8	-0.1	**0.00%**
Skim Milk Powder	2,536.4	2,535.8	-0.6	**-0.02%**	3,927.9	3,927.0	-0.1	**-0.02%**
Apples	1,517.3	1,517.9	0.6	**0.04%**	757.1	999.3	242.2	**31.99%**
Kiwifruit	2,264.4	2,265.3	0.9	**0.04%**	1,340.4	1,359.6	19.2	**1.44%**
Grapes	1,910.6	1,937.5	26.8	**1.41%**	1,993.7	2,021.7	28.0	**1.41%**
Wine	786.6	797.8	11.2	**1.42%**	1,698.9	1,867.0	168.1	**9.89%**

Table 7.6 shows that under the most realistic scenario, EU production of the analysed products remains almost unchanged. Production of poultry is estimated to increase 0.11 percent, compared to an increase of 0.43 percent under the full liberalisation scenario. The smaller increase in poultry production can be explained by the gradual removal of the tariff over five years. Wine is estimated to experience a decrease in production by 1.09 percent. As New Zealand tariffs are already very low and some products are duty-free, changes on the side of the EU are not excepted.

In light of the gradual reduction in tariffs, quotas still in place and some products being excluded from liberalisation, the change in production for New Zealand is predicted to be lower than under the full liberalisation scenario. Production of beef and sheepmeat is expected to remain unchanged, as explained by the quotas on beef meat and sheepmeat. Production of other New Zealand dairy products remains constant. Production of butter is estimated to increase by 0.5 percent in comparison to 2.22 percent under the full liberalisation scenario, which in real numbers is 10 thousand tonnes less. This minor increase in butter production can be explained

by the fact that the butter quota has been in place. The slight increases in New Zealand production can be attributed to the fact that producer prices for the majority of products remain almost unchanged and therefore New Zealand producers would not produce more. New Zealand is expected to experience the most significant increase in production of apples, 47 percent, which is 10 percent less than under the full liberalisation scenario. The New Zealand wine sector is expected to increase by 8.5 percent, nearly five percent less than in the previous scenario. The smaller increase in apple and wine production under this scenario is because the duties on these products are phased-out over seven years to become duty-free in 2023, compared to the full liberalisation scenario where duties are removed in 2017.

Table 7.6: Change in production in thousands of tonnes between baseline and the most realistic outcome scenario in 2024

Commodity	The EU				New Zealand			
	Base	Scenario 2	Change	% Change	Base	Scenario 2	Change	% Change
Beef	8,940	8,940	0	**0.00%**	734	734	0	**0.00%**
Pigmeat	25,784	25,783	-1	**0.00%**	58	58	0	**0.00%**
Sheepmeat	1,091	1,091	0	**0.00%**	569	569	0	**0.00%**
Wool	207	207	0	**0.00%**	176	176	0	**0.00%**
Poultry	15,692	15,708	16	**0.11%**	237	237	0	**0.00%**
Eggs	8,577	8,577	0	**0.00%**	75	75	0	**0.00%**
Butter	2,880	2,882	2	**0.04%**	587	590	3	**0.50%**
Cheese	10,063	10,063	0	**0.00%**	370	369	-1	**-0.11%**
Whole Milk Powder	757	757	0	**0.00%**	1,260	1,259	-1	**-0.01%**
Skim Milk Powder	1,204	1,204	0	**0.00%**	616	616	0	**0.00%**
Apples	13,320	13,323	3	**0.02%**	545	807.	261	**47.89%**
Kiwifruit	803	803	0	**0.00%**	480	483	3	**0.62%**
Grapes	24,698	24,851	152	**0.62%**	415	419	4	**0.77%**
Wine	18,780	18,574	-205	**-1.09%**	328	356	28	**8.50%**

The impact on producer returns for the EU and New Zealand is shown in Table 7.7. Total producer returns for all products in the LTEM are estimated to increase by 2.69 percent for New Zealand producers and 0.33 percent for EU producers, in comparison to 3.30 and 0.35 (respectively) under the full liberalisation scenario. In the EU, producer returns for all

commodities are expected to stay almost unchanged, although producer returns for grapes are estimated to increase by nearly two percent.

In New Zealand, the largest increase in producer returns is expected for apples at 95 percent. The New Zealand wine industry is estimated to see an increase in producer returns of 19 percent. These significant changes in wine and apple returns are mainly due to the rise in producer prices and quantities produced, caused by the removal of specific tariffs. Meat producer returns are expected to stay unchanged. New Zealand producers are expected to have a slight increase in producer returns for butter, kiwifruit and grapes by approximately two percent each, resulting from a slight increase in producer prices and quantities produced due to the gradual removal of duties and tariffs.

Table 7.7: Change in producer returns in millions of US$ between baseline and the most realistic outcome scenario in 2024

Commodity	The EU				New Zealand			
	Base	Scenario 2	Change	% Change	Base	Scenario 2	Change	% Change
Beef	47,077	47,077	0	**0.00%**	2,322	2,322	0	**0.00%**
Pigmeat	56,028	56,023	-5	**-0.01%**	222	222	0	**0.00%**
Sheepmeat	7,301	7,301	0	**0.00%**	2,481	2,481	0	**0.00%**
Wool	320	320	0	**0.00%**	535	535	0	**0.00%**
Poultry	44,201	44,242	41	**0.09%**	690	690	0	**0.00%**
Eggs	33,313	33,313	0	**0.00%**	344	344.	0	**0.00%**
Butter	11,957	11,967	10	**0.08%**	3,318	3,381	63	**1.90%**
Cheese	37,699	37,703	4	**0.01%**	1,925	1,926	1	**0.05%**
Whole Milk Powder	2,378	2,378	0	**0.00%**	5,405	5,404	-1	**-0.01%**
Skim Milk Powder	3,056	3,055	-1	**-0.02%**	2,420	2,419	-1	**-0.02%**
Apples	20,211	20,222	11	**0.06%**	413	806	393	**95.19%**
Kiwifruit	1,819	1,820	1.00	**0.05%**	644	657	13	**2.07%**
Grapes	47,190	48,150	959	**2.03%**	829	847	18	**2.19%**
Wine	14,773	14,819	46	**0.31%**	557	664	107	**19.24%**
Total	327,331	328,397	1,066	**0.33%**	22,110	22,705	594	**2.69%**

The effects of the most realistic outcome of the FTA scenario on total net trade for New Zealand and the EU are presented in Table 7.8. New Zealand, while exporting more of these products to the EU, does not alter the fact that the EU is a net exporter. The scenario has significant

implications for patterns of bilateral trade, although to a slightly smaller extent than in the full liberalisation scenario. The bilateral net trade of beef and sheepmeat is expected to remain unchanged, and this can be explained by the quotas on beef meat and sheepmeat, which limit the quantity exported. The most significant increase of 396 thousand tonnes is expected in the export of apples from New Zealand to the EU, which is almost 30 thousand tonnes less than under the full liberalisation scenario. An increase of roughly 56 thousand tonnes in the export of wine from New Zealand is predicted to occur, which is nearly five thousand tonnes less than in the previous scenario. The smaller increases in New Zealand's exports of apples and wine under this scenario are due to duties on these products, which would be phased out over seven years, becoming duty-free by 2023 in comparison to the full liberalisation scenario where duties are removed in 2017. New Zealand butter and kiwifruit exports to the EU are predicted to increase by 15 thousand tonnes and around 11 thousand tonnes, respectively, while minor changes are expected for other commodities.

Table 7.8: Change in bilateral net trade in thousands of tonnes between baseline and the most realistic outcome scenario in 2024

Commodity	The EU				New Zealand			
	Base	Scenario 2	Change	% Change	Base	Scenario 2	Change	% Change
Beef	-11	-11	**0**	0.00%	11	11	**0**	0.00%
Pigmeat	14	13	**-1**	-7.85%	-14	-13	**1**	-7.85%
Sheepmeat	-138	-138	**0**	0.00%	138	138	**0**	0.00%
Wool	-21	-21	**0**	0.00%	21	21	**0**	0.00%
Poultry	0	0	**0**	0.00%	0	0	**0**	0.00%
Eggs	0	0	**0**	0.00%	0	0	**0**	0.00%
Butter	-50	-65	**-15**	30.25%	50	65	**15**	30.25%
Cheese	-9	-10	**-1**	7.51%	9	10	**1**	7.51%
Whole Milk Powder	-2	-1	**1**	-7.95%	2	1	**-1**	-7.95%
Skim Milk Powder	0	0	**0**	0.00%	0	0	**0**	0.00%
Apples	-118	-514	**-396**	334.49%	118	514	**396**	334.49%
Kiwifruit	-169	-180	**-11**	5.96%	169	180	**11**	5.96%
Grapes	0	0	**0**	0.00%	0	0	**0**	0.00%
Wine	-83	-139	**-56**	66.09%	83	139	**56**	66.09%

7.4 Scenario 3 - The most protective towards its FTA agreement

In this scenario, it was simulated that New Zealand immediately liberalises all agricultural products in 2017, apart from dairy products, wine and poultry, which are subject to five year tariff phase-outs. Because butter, cheese and eggs are duty-free already, this scenario models a gradual removal of five percent tariffs on skimmed milk powder and whole milk powder over five years. Every year there is a rate reduction of one percent, starting in 2017, so in the fifth year, tariffs are reduced to zero.

It was simulated that the EU excludes poultry, eggs, wine and all dairy products from liberalisation, which means that tariffs and duties on these products stay in place. It was assumed that the EU removes its current country-specific tariff quotas for New Zealand's high-quality beef, sheepmeat, butter and cheese. The in-quota tariff of 20 percent on high-quality beef is gradually eliminated over seven years, while duties of US$905 per tonne on butter and US$221 per tonne on cheese continue to apply as it was assumed that the dairy sector would be excluded from liberalisation. All other tariffs on New Zealand products, including kiwifruit and wine products, are eliminated gradually over seven years.

Table 7.9 shows the change in producer prices for the EU and New Zealand. The impact of this scenario on producer prices in the EU is minor for all commodities. Producer prices are predicted to remain unchanged for the majority of goods, including meat products, milk powders and wool, while other dairy products stay almost constant. Producer prices for apples, kiwifruit and grapes also remain practically unchanged. Wine producer price is estimated to increase by 0.18 percent, which is 1.1 percent less than under the full liberalisation scenario. Producer prices stay almost unchanged due to the fact that the EU already has duty-free access to the New Zealand market for the majority of the analysed commodities. This scenario has the smallest effect on producer prices in the EU, explained by the fact that New Zealand would be more protective towards its agricultural sector than under other scenarios.

As expected, compared to the other scenarios New Zealand producers are expected to experience the smallest gains under this scenario. Producer prices are expected to remain unchanged for most commodities. Producer prices of all dairy products, poultry, eggs and wine are expected to remain almost unaltered as a result of the exclusion of these products from

liberalisation. Despite the removal of the country-specific quota on butter and cheese, producer prices are estimated to stay almost unchanged due to the assumption that the relatively heavy duties inside country-specific quotas would remain. Apple producer prices are 30 percent higher in this scenario than in the business-as-usual scenario. This increase can be explained by the very high EU import duty of €122.50 per 100 kilograms on apples. Kiwifruit price is estimated to increase by almost two percent. Beef price is expected to increase by 0.18 percent, explained by the removal of the quota on beef meat as well as the gradual removal of the in-quota tariff of 20 percent over seven years. Table 7.9 summarises the results in producer prices for New Zealand goods.

Table 7.9: Change in producer prices in US$ per tonne between baseline and scenario 3 in 2024

Commodity	The EU				New Zealand			
	Base	Scenario 3	Change	% Change	Base	Scenario 3	Change	% Change
Beef	5,265.8	5,265.8	0.0	**0.00%**	3,161.7	3,167.5	5.8	**0.18%**
Pigmeat	2,172.9	2,172.8	-0.1	**0.00%**	3,776.1	3,776.2	0.1	**0.00%**
Sheepmeat	6,691.5	6,691.5	0.0	**0.00%**	4,359.9	4,359.9	0.0	**0.00%**
Wool	1,545.5	1,545.5	0.0	**0.00%**	3,032.9	3,032.9	0.0	**0.00%**
Poultry	2,816.7	2,816.4	-0.3	**-0.01%**	2,911.2	2,910.8	-0.4	**-0.01%**
Eggs	3,883.6	3,883.6	0.0	**0.00%**	4,541.6	4,541.6	0.0	**0.00%**
Butter	4,150.6	4,150.2	-0.4	**-0.01%**	5,648.9	5,648.7	-0.2	**0.00%**
Cheese	3,746.2	3,746.4	0.2	**0.01%**	5,198.5	5,197.4	-1.0	**-0.02%**
Whole Milk Powder	3,139.4	3,139.6	0.2	**0.00%**	4,289.9	4,289.8	-0.1	**0.00%**
Skim Milk Powder	2,536.4	2,536.6	0.2	**0.00%**	3,927.9	3,928.0	0.1	**0.00%**
Apples	1,517.3	1,517.5	0.2	**0.01%**	757.1	990.9	233.8	**30.88%**
Kiwifruit	2,264.4	2,268.6	4.2	**0.19%**	1,340.4	1,363.6	23.2	**1.74%**
Grapes	1,910.6	1,910.8	0.2	**0.01%**	1,993.7	1,993.9	0.2	**0.01%**
Wine	786.6	788.0	1.4	**0.18%**	1,698.9	1,693.7	-5.2	**-0.31%**

Table 7.10 shows that EU production of the majority of the analysed products stays almost unchanged compared to the baseline scenario. As New Zealand tariffs are already very low and some products are duty-free, changes for the EU are not expected.

Changes in production for New Zealand is expected to be smaller than under other scenarios. New Zealand production of the majority of the analysed commodities is also predicted to stay

unchanged. New Zealand is projected to have the most significant increase in the production of apples: 56 percent. This change occurs because of the gradual removal of the EU's duty on apple over seven years. Therefore, New Zealand producers receive a higher price for apples on the EU market than in the rest of the world, resulting in increased production of apples for the EU market. Dairy sector production stays unchanged because the EU would exclude these products from liberalisation in order to protect its farmers. There is a minor increase in New Zealand beef production by 0.30 percent after the removal of the country-specific quota and in-quota tariff over a period of seven years. Because producer prices for these products would stay almost unchanged, New Zealand producers would have no incentive to produce more.

Table 7.10: Change in production in thousands of tonnes between baseline and scenario 3 in 2024

Commodity	The EU				New Zealand			
	Base	Scenario 3	Change	% Change	Base	Scenario 3	Change	% Change
Beef	8,940	8,940	0	**0.00%**	734	736	2	**0.30%**
Pigmeat	25,784	25,783	-1	**0.00%**	58	58.	0	**0.00%**
Sheepmeat	1,091	1,091	0	**0.00%**	569	569	0	**0.00%**
Wool	207	207	0	**0.00%**	176	176	0	**0.00%**
Poultry	15,692	15,709	17	**0.11%**	237	237	0	**0.00%**
Eggs	8,577	8,577	0	**0.00%**	75	75	0	**0.00%**
Butter	2,880	2,882	1	**0.04%**	587	588	1	**0.17%**
Cheese	2,880	2,880	0	**0.00%**	370	369	-1	**-0.24%**
Whole Milk Powder	10,063	10,073	10	**0.10%**	1,260	1,259	-1	**-0.01%**
Skim Milk Powder	757	757	0	**0.00%**	616	616	0	**0.00%**
Apples	1,204	1,204	0	**0.00%**	545	852	306	**56.16%**
Kiwifruit	13,320	13,320	0	**0.00%**	480	478	-2	**-0.46%**
Grapes	803	804	1	**0.08%**	415	416	1	**0.01%**
Wine	24,698	24,699	1	**0.00%**	328	325	-3	**-0.82%**

The impact on producer returns for the EU and New Zealand is shown in Table 7.11. Total returns for all products in the LTEM are estimated to stay unchanged for EU producers and have a slight increase of two percent for New Zealand producers.

In New Zealand, the largest increase in producer returns is expected for apples, at 104 percent. This significant change in apple returns is mainly due to the rise in producer price and quantity

produced caused by the gradual removal of the heavy customs duty over seven years. New Zealand producers of beef are expected to have a slight increase in producer returns by 0.49 percent and a slight increase in producer prices and quantity produced due to the removal of the quota and in-quota tariff. All the other meat and dairy products are estimated to experience almost no change in producer returns. Interestingly, New Zealand's wine industry is expected to see a decrease in producer returns of 1.13 percent relative to the base scenario. This change in wine returns is due to the EU excluding wine from liberalisation. New Zealand producers are expected to have the smallest increase in returns under scenario 3 compared to the others, due to the assumption that the EU would keep a higher level of protectionism by excluding certain products and liberalising others over a period of seven years.

Table 7.11: Change in producer returns in millions of US$ between baseline and scenario 3

Commodity	The EU				New Zealand			
	Base	Scenario 1	Change	% Change	Base	Scenario 1	Change	% Change
Beef	47,077	47,077	0	**0.00%**	2,322	2,333	11	**0.49%**
Pigmeat	56,028	56,023	-5	**-0.01%**	222	222	0	**0.00%**
Sheepmeat	7,301	7,301	0	**0.00%**	2,481	2,481	0	**0.00%**
Wool	320	320	0	**0.00%**	535	535	0	**0.00%**
Poultry	44,201	44,244	43	**0.10%**	690	690	0	**0.00%**
Eggs	33,313	33,313	0	**0.00%**	344	344	0	**0.00%**
Butter	11,957	11,955	-2	**-0.02%**	3,318	3,323	5	**0.16%**
Cheese	37,699	37,738	39	**0.11%**	1,925	1,920	-5	**-0.26%**
Whole Milk Powder	2,378	2,378	0	**0.00%**	5,405	5,404	-1	**-0.01%**
Skim Milk Powder	3,056	3,051	0	**0.00%**	2,419	2,419	0	**0.00%**
Apples	20,211	20,214	3	**0.01%**	413	844	431	**104.38%**
Kiwifruit	1,819	1,824	5	**0.27%**	644	652	8	**1.27%**
Grapes	47,190	47,197	7	**0.01%**	829	829	0	**0.00%**
Wine	14,773	14,786	13	**0.08%**	557	551	-6	**-1.13%**
Total	327,331	327,434	103	**0.03%**	22,110	22,554	444	**2.01%**

Regarding bilateral net trade, for the majority of commodities trade flows are expected to experience no significant change. Total net trade for New Zealand and the EU are presented in Table 7.12. The greatest increase of 416 thousand tonnes is expected in the export of apples from New Zealand to the EU, which is almost seven thousand tonnes less than under the full

liberalisation scenario. This smaller increase in New Zealand's export of apples would be due to the fact that duties on these products would be phased-out over seven years to become duty-free in 2023, in comparison to the full liberalisation scenario where they are removed in 2017. New Zealand exports of kiwifruit to the EU are predicted to increase by 10 thousand tonnes, while a minor increase of three thousand tonnes is estimated for beef. Bilateral trade in dairy products remains unchanged because it was assumed that the EU would continue to apply all tariffs and duties. Interestingly, despite the removal of the country-specific quota on butter and cheese, bilateral trade of these products is estimated to stay almost unchanged due to the assumption that the relatively heavy duties inside country-specific quotas would remain. The removal of New Zealand's country-specific quotas is not expected to have a significant impact on bilateral trade of butter and cheese if the in-quota tariffs are not removed. A decrease by three thousand tonnes in the export of wine from New Zealand is predicted. This decline can be explained by the fact that it was assumed that the EU would exclude wine from the agreement. Conversely, this represents an increase in EU exports of wine to New Zealand due to the removal of New Zealand's tariff of five percent. In comparison to the other scenarios, scenario 3 has no significant implications for patterns of bilateral trade and has the smallest impact on bilateral trade.

Table 7.12: Change in bilateral net trade in thousands of tonnes between baseline and scenario 3 in 2024

Commodity	The EU				New Zealand			
	Base	Scenario 1	Change	% Change	Base	Scenario 1	Change	% Change
Beef	-11	-14	**-3**	24.23%	11	14	**3**	24.23%
Pigmeat	15	13	**-2**	7.85%	-15	-13	**2**	7.85%
Sheepmeat	-138	-138	**0**	0.00%	138	138	**0**	0.00%
Wool	-21	-21	**0**	0.00%	21	21	**0**	0.00%
Poultry	0	0	**0**	0.00%	0	0	**0**	0.00%
Eggs	0	0	**0**	0.00%	0	0	**0**	0.00%
Butter	-50	-50	**0**	0.00%	50	50	**0**	0.00%
Cheese	-9	-9	**0**	0.00%	9	9	**0**	0.00%
Whole Milk Powder	-2	-1	**1**	7.95%	2	1	**-1**	7.95%
Skim Milk Powder	0	0	**0**	0.00%	0	0	**0**	0.00%
Apples	-118	-534	**-416**	351.67%	118	534	**416**	351.67%
Kiwifruit	-169	-179	**-10**	5.37%	169	179	**10**	5.37%
Grapes	0	0	**0**	0.00%	0	0	**0**	0.00%
Wine	-83	-80	**3**	4.03%	83	80	**-3**	4.03%

7.5 Scenario 4 - The CETA case

This scenario assumes that in negotiating the FTA with New Zealand, the EU would apply the same approach as it had in negotiations of its FTA with Canada. It is assumed that the EU's existing country-specific tariff quota of 1,300 tonnes for New Zealand's high-quality beef would be kept, with the immediate removal of the current in-quota duty of 20 percent. In addition, the EU would introduce an additional duty-free quota for a total importation of an aggregate quantity of beef and veal of 6,000 tonnes of carcass weight, being reached in the sixth year of the agreement being in force. This would not be subject to further increase. This scenario assumed that the EU would liberalise sheepmeat entirely and remove the country-specific quota for New Zealand's sheepmeat. Furthermore, the EU would liberalise all dairy, kiwifruit and wine tariff lines when the FTA comes into force. In this scenario, the EU would exclude poultry and eggs from liberalisation. This scenario also assumes that New Zealand would immediately liberalise all agricultural products apart from wine and poultry, which are subject to five year tariffs phase-outs.

As shown in Table 7.13, EU producer prices are estimated to stay almost unchanged across all commodities. Producer prices for apples and kiwifruit remain virtually unchanged with an increase of no more than one percent, while grapes are estimated to experience the most significant increase of almost US$26 per tonne, equal to 1.34 percent. Wine producer prices are expected to increase by 1.29 percent. Producer prices stay almost unchanged as the EU already has duty-free access to New Zealand's market for the analysed commodities (apart from pork, eggs, whole milk powder, skim milk powder and wine, which currently face a relatively small tariff of five percent).

New Zealand producers are expected to experience reasonably significant gains under the CETA scenario. Apple producer prices are 30 percent higher in this scenario than in the business-as-usual scenario. This significant increase can be explained by the current very high EU import duty. Wine producer prices are estimated to increase by 9.27 percent, while kiwifruit prices increase by almost two percent. Butter and cheese producer prices are anticipated to increase by 1.22 and 0.12 percent, respectively. Beef prices are expected to remain unchanged because the EU's additional duty-free quota of 6,000 tonnes is still smaller than New Zealand's current exports of beef to the EU, as, in addition to its country-specific quota, New Zealand exports beef meat under the EU most-favoured-nation quota. New Zealand faces relatively high tariffs and duties on these commodities in the EU market, therefore once these goods are liberalised producer prices increase for most of the products. The producer price of sheepmeat is estimated to remain unchanged because the New Zealand country-specific quota is not fulfilled and the tariff within it is equal to zero. Table 7.13 summarises the results in producer prices for New Zealand products.

Table 7.13: Change in producer prices in US$ per tonne between baseline and the CETA scenario in 2024

Commodity	The EU				New Zealand			
	Base	Scenario 4	Change	% Change	Base	Scenario 4	Change	% Change
Beef	5,265.8	5,265.8	0.0	**0.00%**	3,161.7	3,161.7	0.0	**0.00%**
Pigmeat	2,172.9	2,172.8	-0.1	**0.00%**	3,776.1	3,776.2	0.1	**0.00%**
Sheepmeat	6,691.5	6,691.5	0.0	**0.00%**	4,359.9	4,359.9	0.0	**0.00%**
Wool	1,545.4	1,545.5	0.1	**0.00%**	3,032.9	3,032.9	0.0	**0.00%**
Poultry	2,816.7	2,816.4	-0.3	**-0.01%**	2,911.2	2,910.8	-0.4	**-0.01%**
Eggs	3,883.6	3,883.6	0.0	**0.00%**	4,541.6	4,541.6	0.0	**0.00%**
Butter	4,150.6	4,148.9	-1.7	**-0.04%**	5,648.9	5,718.0	70.9	**1.22%**
Cheese	3,746.2	3,746.5	0.3	**0.01%**	5,198.4	5,204.4	6.0	**0.12%**
Whole Milk Powder	3,139.4	3,140.6	1.2	**0.04%**	4,289.9	4,292.3	2.4	**0.06%**
Skim Milk Powder	2,536.4	2,537.0	0.6	**0.02%**	3,927.9	3,928.7	0.8	**0.02%**
Apples	1,517.3	1,517.5	0.2	**0.01%**	757.1	988.3	231.2	**30.54%**
Kiwifruit	2,264.4	2,268.6	4.2	**0.19%**	1,340.4	1,363.5	23.1	**1.73%**
Grapes	1,910.6	1,936.2	25.6	**1.34%**	1,993.7	2,020.4	26.7	**1.34%**
Wine	786.6	796.8	10.2	**1.29%**	1,698.9	1,856.5	157.6	**9.27%**

Table 7.14 shows that EU production of all of the analysed products remains almost unchanged compared to the baseline scenario. As New Zealand tariffs are very low and some products are duty-free, the EU can expect changes to be insignificant.

New Zealand is expected to experience shifts in the production of the majority of commodities. New Zealand is predicted to have the greatest increase in its production of apples (57 percent). This change occurs because of the removal of the EU duty on apples and an increase in producer price, led by an increase in producer returns for production. New Zealand wine production is expected to increase by almost 13 percent due to the removal of the duty on wine. Production of other New Zealand goods remains relatively constant: for example, only minor changes in production of butter are estimated, with increases of 2.22 percent predicted. The small increases in dairy production can be explained by the fact that producer prices for these products stay almost unchanged; therefore, for New Zealand producers there is no stimulus to produce more.

Table 7.14: Change in production in thousands of tonnes between baseline and the CETA scenario in 2024

Commodity	The EU				New Zealand			
	Base	Scenario 4	Change	% Change	Base	Scenario 4	Change	% Change
Beef	8,940	8,940	0	**0.00%**	735	734	-1	**-0.06%**
Pigmeat	25,784	25,783	-1	**0.00%**	58	58	0	**0.00%**
Sheepmeat	1,091	1,091	0	**0.00%**	569	569	0	**0.00%**
Wool	207	207	0	**0.00%**	176	176	0	**0.00%**
Poultry	15,692	15,709	17	**0.11%**	237	237	0	**0.00%**
Eggs	8,577	8,577	0	**0.00%**	75	75	0	**0.00%**
Butter	2,881	2,880	-1	**-0.03%**	587	600	13	**2.22%**
Cheese	10,063	10,073	10	**0.11%**	370	369	-1	**-0.11%**
Whole Milk Powder	757	758	1	**0.10%**	1,260	1,262	2	**0.14%**
Skim Milk Powder	1,204	1,204	0	**0.00%**	616	616	0	**0.00%**
Apples	13,320	13,320	0	**0.00%**	545	858	313	**57.25%**
Kiwifruit	803	804	1	**0.08%**	480	478	-2	**-0.44%**
Grapes	24,698	24,846	147	**0.60%**	415	419	3	**0.75%**
Wine	18,780	18,575	-205	**-1.09%**	328	372	44	**13.33%**

Changes in producer returns for the EU and New Zealand are shown in Table 7.15. Total producer returns for all products in the LTEM are estimated to increase by 3.25 percent for New Zealand producers and 0.31 percent for EU producers. In the EU, producer returns for agricultural commodities are expected to stay almost unchanged, although producer returns for grapes, kiwifruit and wine are estimated to increase by almost two percent, 0.27 percent and 0.19 percent, respectively.

In New Zealand, the largest increase in producer returns (105 percent) is expected for apples. This significant change in apple returns is mainly due to the rise in producer price and quantity produced caused by the removal of the heavy customs duty. The New Zealand wine industry is estimated to experience an increase in producer returns of almost 24 percent relative to the base scenario in 2014. This change in wine returns is due to the removal of the tariff followed by the increase of New Zealand production and rises in the prices winemakers are paid. New Zealand producers are also expected to experience a slight increase in producer returns of butter by 3.47 percent, as a result of a slight increase in producer price and quantity produced due to the removal of the quota and the high duty on butter. Beef producer returns are expected to remain

unchanged because no change in producer price and quantity produced was estimated, as a result of the EU additional duty-free quota of 6,000 tonnes constraining exports of beef.

Table 7.15: Change in producer returns in millions of US$ between baseline and the CETA scenario in 2024

Commodity	The EU				New Zealand			
	Base	Scenario 4	Change	% Change	Base	Scenario 4	Change	% Change
Beef	47,077	47,077	0	**0.00%**	2,322	2,321	-1	**-0.06%**
Pigmeat	56,028	56,023	-5	**-0.01%**	222	222	0	**0.00%**
Sheepmeat	7,301	7,301	0	**0.00%**	2,481	2,481	0	**0.00%**
Wool	320	320	0	**0.00%**	535	535	0	**0.00%**
Poultry	44,201	44,244.	43	**0.10%**	690	690	0	**0.00%**
Eggs	33,313	33,313	0	**0.00%**	344	344	0	**0.00%**
Butter	11,957	11,949	-8	**-0.07%**	3,318	3,433	115	**3.47%**
Cheese	37,699	37,741	42	**0.11%**	1,925	1,925	0	**0.00%**
Whole Milk Powder	2,378	2,381	3	**0.14%**	5405	5,416	11	**0.20%**
Skim Milk Powder	3,056	3,057	1	**0.02%**	2,419	2,420	1	**0.02%**
Apples	20,211	20,214	3	**0.01%**	413	848	435	**105.26%**
Kiwifruit	1,819	1,824	5	**0.27%**	644	652	8	**1.27%**
Grapes	47,190	48,108	918	**1.94%**	829	846	17	**2.09%**
Wine	14,773	14,801	28	**0.19%**	557	690	132	**23.84%**
Total	327,331	328,360	1,029	**0.31%**	22,110	22,828	718	**3.25%**

Lastly, Table 7.16 shows the CETA scenario on total net trade for New Zealand and the EU. The EU remains a net importer of most of the analysed commodities in the baseline and CETA scenario. New Zealand's exports are expected to increase across the majority of commodities in this scenario. The most significant increase of 423 thousand tonnes is expected in exports of apples from New Zealand to the EU. An increase of almost 60 thousand tonnes in exports of wine from New Zealand is also predicted. New Zealand exports to the EU are predicted to increase by 16 thousand tonnes for butter and around 10 thousand tonnes for kiwifruit, while beef meat is projected to remain unchanged due to the quota being applied. The EU's additional duty-free quota for beef of 6,000 tonnes is not expected to have an impact on the bilateral trade of the same. The CETA scenario has significant implications on bilateral trade flows and has the same impact as the full liberalisation scenario, apart from for beef meat, which is expected to stay unchanged in this scenario.

Table 7.16: Change in bilateral net trade in thousands of tonnes between baseline and the CETA scenario in 2024

Commodity	The EU				New Zealand			
	Base	Scenario 4	Change	% Change	Base	Scenario 4	Change	% Change
Beef	-11	-11	**0**	0.00%	11	11	**0**	0.00%
Pigmeat	14	13	**-1**	-7.85%	-14	-13	**1**	-7.85%
Sheepmeat	-138	-138	**0**	0.00%	138	138	**0**	0.00%
Wool	-21	-21	**0**	0.00%	21	21	**0**	0.00%
Poultry	0	0	**0**	0.00%	0	0	**0**	0.00%
Eggs	0	0	**0**	0.00%	0	0	**0**	0.00%
Butter	-50	-66	**-16**	32.58%	50	66	**16**	32.58%
Cheese	-9	-10	**-1**	11.57%	9	10	**1**	11.57%
Whole Milk Powder	-1	-3	**-2**	137.37%	1	3	**2**	137.37%
Skim Milk Powder	0	0	**0**	0.00%	0	0	**0**	0.00%
Apples	-118	-541	**-423**	357.29%	118	541	**423**	357.29%
Kiwifruit	-169	-179	**-10**	5.41%	169	179	**10**	5.41%
Grapes	0	0	**0**	0.00%	0	0	**0**	0.00%
Wine	-83	-143	**-60**	71.32%	83	143	**60**	71.32%

7.6 Conclusion

The results from this research draw attention to the fact that the effects of the FTA are more significant for New Zealand. This is because the proportion of trade for New Zealand with the EU in its total trade is much higher than for the EU. Another reason is that trade barriers on agricultural goods are higher in the EU and by removing them New Zealand producers receive a higher price for their products exported to the EU market, resulting in an increase of exports to the EU. In New Zealand, the largest growth in producer returns is expected for apples, ranging between 95 and 105 percent across the four scenarios, depending on whether it is assumed that the duty on apples is removed gradually or immediately. In addition, the New Zealand wine industry is estimated to experience a significant increase in producer returns of between 19 and 24 percent. Regarding bilateral net trade, the most significant increase of 423 thousand tonnes is expected in the export of apples from New Zealand to the EU under the full liberalisation and CETA scenarios and to a slightly smaller extent under the other two scenarios. The New

Zealand wine industry is estimated to experience a significant increase in exports to the EU market of 55 to 60 thousand tonnes.

For the EU, slightly negative results are expected for bilateral trade. The EU would import more agricultural products from New Zealand than before. In all four scenarios, while New Zealand would export more of these products to the EU, the EU would remain a net exporter. However, these results should not be interpreted as indicating that a FTA would not be desirable for the EU.

Chapter 8
Conclusion

8.1 Introduction

This chapter summarises the thesis and highlights the main findings from the previous chapter. Attention is drawn to the major results and implications are examined. At the end of this chapter, limitations of the research will be discussed and suggestions for further research will be outlined

8.2 Summary

In February 2016, a non-binding resolution was passed in the European Parliament in support of the European Union (EU) commencing negotiations for a comprehensive free trade agreement (FTA) with New Zealand. This was seen as a bold step to significantly boost trade and investment between the two parties. Early in 2017, the preparatory work for potential FTA negotiations was concluded between New Zealand's Minister of Trade and the EU's Commissioner for Trade. Furthermore, in September 2017, the European Commission proposed directives for negotiating a FTA with New Zealand and negotiations will be begin once the Council adopts proposed directives.

As New Zealand's second largest trading partner in recent years, the EU has been an important trading partner in goods and services to New Zealand. By comparison, New Zealand was only the 48th largest trading partner in goods to the EU in 2016 (European Commission, 2017). In 2016, New Zealand's two-way trade with the EU accounted for around NZ$8.8 billion of exports and NZ$12.1 billion of imports in goods and services (European Commission, 2017).

Traditionally, New Zealand largely exports agricultural products to the EU while manufactured goods dominate EU exports to New Zealand. Thus, there is a clear differentiation in the types of products that dominate imports and exports between the two parties. In 2016, New Zealand's

top exports to the EU were sheepmeat, wine, fruit and wool (Statistics New Zealand, 2016). In the same year, the EU primarily exported industrial or mechanical goods such as motor vehicles, aircraft, medicaments, tractors, trucks and vans into New Zealand.

As explained in Chapter 2, there has been a long history of trade between the EU and New Zealand. As part of this trading history, New Zealand has access through preferential quotas to the EU market for its high-quality beef, sheepmeat, butter and cheese. As New Zealand and the EU have no bilateral trade agreement and are both members of the World Trade Organisation (WTO), apart from preferential quotas the two parties trade on the most-favoured-nation principle.

With regards to a FTA, New Zealand and the EU both face issues that may prove to be stumbling blocks for agreement negotiations; in particular, trade in agricultural products. Agriculture is an important sector in both regions and both are net exporters of agricultural products. The difference is that New Zealand agriculture experiences minimal government intervention, is market-oriented and measures such as export subsidies for agricultural goods do not exist. New Zealand has relatively low tariffs for most products, making market access easy for the EU. On the other hand, agriculture is heavily protected and subsidised within the EU, which holds relatively high tariffs and other trade restrictions, especially for agricultural commodities. As New Zealand's main exports are agricultural goods, access to the EU market is currently limited.

The aim of this thesis was to examine the possible economic impacts of the FTA agreement between New Zealand and the EU, with detailed consideration of the agricultural sector. The specific objectives were:

- to understand the evolution of the bilateral trade and to compare the trade and agricultural policies of New Zealand and the EU;
- to analyse EU and New Zealand strategies with a focus on agriculture in their FTAs and to identify the challenges and potential issues;
- to review existing empirical assessments of bilateral trade agreements relevant to the EU and New Zealand;
- to select the most suitable model to address the research question and facilitate empirical analysis;

- to collect trade data and adapt the Lincoln Trade and Environment Model (LTEM) in order to simulate bilateral trade liberalisation;
- to develop different scenarios of bilateral trade liberalisation in the agricultural sector;
- to simulate those scenarios with the LTEM; and
- to make recommendations for improving future FTA negotiations.

To fulfil the main aim of this thesis, a partial equilibrium model named the Lincoln Trade and Environmental Model (LTEM) was selected, as it enables detailed analysis of the agricultural sector with a high desegregation of commodities. The LTEM is a non-bilateral trade model; therefore, in order to simulate the economic impacts of the FTA between the EU and New Zealand each commodity for the two countries was divided into two sub-commodities and the model database was updated for the EU and New Zealand in 2012. This method of dividing commodities has been based on previous research using the LTEM.

Chapter 3 provided an analysis of New Zealand and EU strategies in their concluded FTAs with third parties, with a detailed consideration of agriculture. The main aim of Chapter 3 was to outline the challenges and obstacles faced in formulating FTAs. This assisted in identifying the possible individual position of both countries during FTA negotiations and defining the scenarios for modelling. Furthermore, this chapter focused on liberalisation schedules of particular agricultural products: meat of bovine and sheep, milk and cream, butter and dairy spreads, cheese and curd, kiwifruit and wine as they have been the most important exports from New Zealand to the EU and the most protected products within the EU.

An analysis was carried out for all FTAs concluded between the EU and its third parties and between New Zealand and its third parties. In particular, an analysis of the commodities that would be of interest to a FTA between the EU and New Zealand was conducted to see if a relationship exists between trade patterns and the way these products have been concluded in the existing FTAs. Based on the analysis of existing FTAs, New Zealand has previously immediately liberalised the products analysed in this research as soon as the agreements came into force and gradually removed tariffs on wine over five years with China and over two years with Hong Kong. In all other FTAs, wine was immediately liberalised. New Zealand has never excluded any agricultural product from liberalisation, nor has it applied tariff rate quotas.

The EU has been shown to protect its agricultural industry by restricting liberalisation of its products within tariff elimination schedules or by excluding them from its agreements. The EU applied different patterns of liberalisation on the same agricultural products across the five FTAs analysed. This indicates that the EU was more protective towards its agricultural commodities in its traditional FTAs than in the new generation of FTAs with South Korea and Canada. There is a relationship between trade patterns and liberalisation of certain agricultural products: the EU liberalised products that were not a threat to its domestic producers but protected those products that posed a threat to its farmers.

Based on the analysis of Chapter 3, four scenarios were developed to simulate the economic impacts of the FTA. The scenarios assumed different bilateral liberalisation levels in agricultural commodities. The first scenario assumed full trade liberalisation of agricultural commodities between the EU and New Zealand. It was assumed that all tariffs, customs duties and quotas applied to trade between the two partners would be immediately removed, while policies towards the rest of the world in the model remained unchanged. This was an extreme case and an unlikely final outcome of the FTA negotiations, but this scenario was used to indicate the greatest potential impacts of a FTA between the EU and New Zealand.

The second scenario, named the most realistic outcome of the FTA, simulated that New Zealand would liberalise all agricultural products in 2017 (apart from wine and poultry, which would be subject to a five year tariff phase-out). This scenario assumed that the EU would keep its current country-specific tariff quotas for New Zealand's high-quality beef, sheepmeat, butter and cheese and remove all customs duties inside them in 2017. All other tariffs on New Zealand products, including kiwifruit and wine, would be eliminated gradually over seven years. In addition, this scenario assumed that the EU would exclude poultry and other dairy products from liberalisation.

The third scenario simulated that New Zealand would liberalise all agricultural products in 2017 (apart from dairy products, wine and poultry, which would be subject to five year tariff phase-out). Because butter, cheese and eggs are already duty-free, this scenario models only gradual removal of five percent tariffs on skimmed milk powder and whole milk powder, applying a rate reduction of one percent every year from 2017 so that in the fifth year, tariffs would be reduced to zero. It was simulated that the EU would exclude poultry, eggs, wine and

all dairy products from liberalisation. It was assumed that the EU would remove its current country-specific tariff quotas for New Zealand's high-quality beef, sheepmeat, butter and cheese. The in-quota tariff on high-quality beef would be gradually eliminated over seven years, while duties on butter and cheese would continue to apply as it was assumed that the dairy sector would be excluded from liberalisation. All other tariffs on New Zealand products, including kiwifruit and wine, would be eliminated gradually over seven years.

The fourth scenario, named the CETA case, assumed that the EU's existing tariff quota for New Zealand's high-quality beef would be kept with the immediate removal of the current in-quota tariff of 20 percent. In addition, the EU would introduce an additional duty-free quota for a total importation of an aggregate quantity of beef and veal of 6,000 tonnes reached in the sixth year of the agreement being in force. In this scenario, the EU would liberalise sheepmeat completely and remove the country-specific quota for New Zealand's sheepmeat. The EU would liberalise all dairy tariff lines when the FTA entries into force and New Zealand's country-specific quotas for cheese and butter would also be removed immediately. Immediate liberalisation was assumed for kiwifruit and wine products. The EU would exclude poultry and eggs from liberalisation under this scenario. This scenario also assumed that New Zealand would immediately liberalise all agricultural products when the agreement come into effect (apart from wine and poultry, which are subject to five year tariffs phase-outs).

8.3 Main findings

The modelling results highlighted important implications for the agricultural sectors of New Zealand and the EU in a FTA between the two parties. Four different scenarios were developed and simulated with the LTEM. This model produces an enormous volume of results for 24 products and 23 countries; however, as this research was focused particularly on the FTA between the EU and New Zealand, only results for those two regions were presented. The results for each scenario were displayed and discussed in comparison with the base scenario, both based in 2024. Under the four scenarios, total producer returns for all products in the LTEM were estimated to increase between 2.01 to 3.3 percent for New Zealand producers and 0.03 to 0.33 percent for EU producers. The greatest impacts on total producer returns for the EU and New Zealand were estimated under the full liberalisation scenario.

The impact of all four scenarios on producer returns in the EU was minor for all commodities. In the EU, producer returns for analysed agricultural products were expected to stay almost unchanged. This was likely due to the fact that the EU already has duty-free access to the New Zealand market for the analysed commodities (apart from pork, poultry, eggs, whole milk powder, skim milk powder and wine, which currently face a relatively small tariff of five percent). Three scenarios simulated that tariffs on wine, poultry and dairy products phase-out over five years, where one percent is removed every year starting in 2017. The tariffs were eliminated in 2021 and there was almost no difference in producer prices in 2024 between all four scenarios.

In New Zealand, the largest growth in producer returns would be expected for apples, which grew between 95 and 105 percent across the four scenarios depending on whether it was assumed that the duty on apples was gradually or immediately removed. This change in apple returns would be mainly due to a rise in producer price and quantity produced generated by the removal of the high EU apple import duty of €122.50 per 100 kilograms.

The New Zealand wine industry was estimated to experience a significant increase in producer returns of between 19 and 24 percent under three scenarios. This change in wine returns would be due to the gradual or immediate removal of the tariff followed by an increase in New Zealand production and a rise in the price winemakers are paid. Under scenario 3, the wine industry was expected to see a decrease in producer returns of 1.13 percent, as it was assumed that the EU would exclude wine from liberalisation.

Beef producer returns were expected to remain almost unaltered under all scenarios. Beef producer returns were estimated to increase by 0.48 percent in the full liberalisation scenario, under the assumption that the EU would remove its current country-specific tariff quotas for New Zealand beef and the in-quota tariff of 20 percent over seven years. There was no change estimated in producer returns when the EU kept the quota but removed the in-quota tariff. Under the CETA scenario, beef producer returns were expected to remain unchanged because the EU additional duty-free quota of 6,000 tonnes was relatively small.

New Zealand dairy industry producer returns were expected to remain almost unchanged across all of the scenarios. A slight increase in producer returns of butter by 3.47 percent was estimated under the full liberalisation and CETA scenarios, as a result of a slight increase in producer

price and quantity produced due to the removal of the quota and high duty on butter. Under the other scenarios, there was almost no change in producer returns for butter.

Kiwifruit producer returns were estimated to increase between 1.27 to 2.07 percent across all the scenarios. Sheepmeat producer returns were predicted to remain unchanged under all scenarios, as anticipated because New Zealand's country-specific quota is not fulfilled and the tariff within it is zero.

The complete reciprocal liberalisation of all commodities in the LTEM would have implications for the bilateral net trade. New Zealand's exports would be expected to increase across almost all products in the full liberalisation scenario. The other three scenarios also presented implications for patterns of bilateral trade, although to a smaller extent than in the full liberalisation scenario. In all four scenarios, while New Zealand would export more products to the EU, the EU would remain a net exporter of the same. In all four scenarios, New Zealand exports of kiwifruit to the EU were predicted to increase between nine and 10 thousand tonnes.

Under the full liberalisation and CETA scenarios, the most significant increase (423 thousand tonnes) would be expected in the export of apples from New Zealand to the EU. This increase would occur to a slightly smaller extent under other two scenarios. This was due to the assumption that the duty on apples would be phased-out over seven years to become duty-free in 2023, in comparison to the full liberalisation and CETA scenarios where duties would be removed in 2017.

Under three scenarios, the New Zealand wine industry was estimated to see a significant increase in exports to the EU market of between 55 to 60 thousand tonnes, while in scenario 3 a decrease of 3.37 thousand tonnes was estimated. This drop can be explained by the fact that in this scenario it was assumed that the EU would exclude wine from the agreement. On the other hand, this represented an increase in EU wine exports to New Zealand due to the removal of the five percent tariff.

The New Zealand meat industry was estimated to experience no increase in exports. Bilateral trade in sheepmeat was predicted to remain unchanged under all scenarios, as anticipated because the New Zealand country-specific quota is currently not fulfilled and the tariff within it is zero. A minor increase (2.61 thousand tonnes) in exports of beef from New Zealand to the EU was estimated under the assumption that the current country-specific tariff quotas for New

Zealand's beef and in-quota tariff of 20 percent would be removed. If the country-specific quota was kept or increased to 6,000 tonnes with the removal of the in-quota tariff, bilateral trade was estimated to remain constant.

Regarding bilateral net trade in dairy products, minor changes were estimated to occur under all scenarios, apart from New Zealand butter exports to the EU, which were predicted to increase by 16.43 thousand tonnes when the country-specific quota and in-quota tariff were removed. Interestingly, if the country-specific quota on butter was removed and the in-quota tariff was kept, bilateral trade was estimated to stay almost unchanged due to the assumption that the relatively heavy duties inside country-specific quotas would remain. Conversely, if the country-specific quota was kept and the in-quota tariff on butter was removed, bilateral trade was estimated to change notably, due to the removal of the high in-quota tariff of €170 per tonne. The removal of the New Zealand country-specific quotas would not have a significant impact on bilateral trade of butter and cheese if in-quota tariffs were not removed. According to results, if the EU is not willing to eliminate the quota and in-quota tariff altogether, New Zealand would be advised to request removal of in-quota tariffs for its cheese and butter, as this would present better outcomes than an elimination of quotas alone.

8.4 Implications and policy options

The results from this research draw attention to the fact that the effects of the FTA would be greater for New Zealand than for the EU. This is because the proportion of New Zealand's trade with the EU compared to its total trade is much higher than for the EU. Another reason is that trade barriers on agricultural goods are higher in the EU, so by removing them New Zealand producers would receive higher prices for their products exported to the EU market, subsequently increasing exports to the EU.

For the EU, bilateral trade would have slightly negative results. In the simulated scenarios, in 2024 the EU would be expected to import more agricultural products from New Zealand compared to the business-as-usual case. Nevertheless, these results should not be interpreted as indicating that the FTA would not be desirable for the EU. The imported quantity of analysed products from New Zealand as a share in total EU consumption of the same products would be less than one percent; there would be almost no change in the EU's total consumption and

production of these products. Furthermore, EU producer returns would not be negatively affected by the FTA and the EU's total trade balance for the analysed commodities was estimated to remain almost unchanged; for the majority of products, the EU would remain a net exporter. In future, the impact of the FTA on other sectors and across the whole economy should be measured to find interactions between different sectors. It is most likely that the EU would see greater impacts in its auto or pharmaceutical industries, which would compensate the impacts in the agricultural sector.

Analysis showed that complete bilateral liberalisation of the agricultural sector would be most beneficial for New Zealand without having any adverse effects on the EU. However, it is very likely that the EU will maintain elements of protectionism within the FTA with New Zealand. This assumption is based on analysis of the EU's strategies in its previous five FTAs. As New Zealand's production patterns are relatively similar to those of Chile and Canada, it is suggested that the FTA between the EU and New Zealand will contain more protectionism than the EU's FTAs with South Korea and Canada, but less than with Chile. New Zealand can expect that certain wines and cheeses will be excluded from liberalisation due to their unique status as GIs in the EU.

Across its five current FTAs, the EU has not applied a single, consistent approach regarding the liberalisation of agricultural products. However, a relationship can be seen between trade patterns and the liberalisation of certain agricultural commodities. The EU has liberalised those products that pose no threat to its domestic producers, but protected products that pose a threat to its producers. In analysing trade patterns between the EU and New Zealand and based on the modelling results, it can be suggested that New Zealand products would pose no real threat to EU farmers, even if the EU completely liberalised the agricultural products analysed in this research.

Annually, the country-specific quota for New Zealand's sheep and goat meat accounts for 228,254 tonnes at zero duty (Commission Implementing Regulation (EU), 2011; New Zealand Meat Board, 2016). New Zealand has not utilised this quota in the last 10 years and the fall in New Zealand exports of sheep and goat meat to the EU can be explained by the weakened demand in the EU market and by increased demand in Asia. A significant increase in New Zealand exports to the EU is not expected in coming years and the results of this research

conclude that even if the EU removed the country-specific quota and completely liberalised sheepmeat within the FTA with New Zealand, New Zealand exports to the EU would not increase.

A specific tariff rate quota (1,300 tonnes by product weight) for high-quality beef was granted to New Zealand during the GATT Uruguay Round. In tariff quota applies ad valorem duty of 20 percent. Apart from this, New Zealand's export of frozen beef is treated under the EU's most-favoured-nation quota, which is 53,000 tonnes within 20 percent of ad valorem tariff (Commission Implementing Regulation (EU), 2001). In 2013, New Zealand exported 11,280 tonnes of beef meat to the EU market, 2.34 percent of its total exported tonnes of beef. As the tariff is the same for the country-specific quota and the EU most-favoured-nation quota, New Zealand could export more beef to the EU market as there is a space under the EU's most-favoured-nation quota. According to the modelling results, the maximum increase under the full liberalisation scenario in beef exports is estimated to be 2.61 thousand tonnes. By completely liberalising beef, New Zealand beef prices would be expected to increase by 0.18 percent, a factor too small to have a significant impact on production and exports of New Zealand.

Currently, New Zealand cheese and butter enter the EU market under WTO country-specific tariff rate quotas. A specific butter quota for New Zealand was granted when the United Kingdom (UK) joined the European Economic Community (EEC) in 1973 (Council Regulation (EEC), 1983). The existing annual volume for specific butter quota is 74,693 metric tonnes, with an in-quota tariff of €70 per 100 kilograms. In last 10 years, New Zealand's export of butter to the EU has a declining trend and the butter quota fulfilment was less than 50 percent. In 2015, New Zealand exported the lowest quantity (8,000 tonnes) of butter ever, 10 percent of the current quota. According to the modelling results in this research, New Zealand exports of butter to the EU could reach a maximum of 67,000 tonnes if the country-specific quota and in-quota tariff are removed, which is still less than the current quota allows.

Currently, New Zealand exports its cheese under two country-specific tariff rate quotas: 4,000 tonnes for cheese for processing and 7,000 tonnes for whole cheddar cheese. In total, a combined volume of 11,000 metric tonnes per year is allowed and the in-quota tariff rate is €17.06 per 100 kilograms of both kinds of cheese (Commission Implementing Regulation (EU),

2013). In last decade, New Zealand has exported quantities over the quota, but a declining trend in cheese exports has been seen. In 2012, New Zealand exported 15,469 tonnes of processing and cheddar cheese combined to the EU but since 2015 quotas for neither kinds of cheese have been fulfilled. Modelling results showed that complete liberalisation of cheese would increase New Zealand cheese exports by 9,050 tonnes to a total of 20,490 tonnes. By comparison, the EU exports to New Zealand would increase by 10,340 tonnes to a total of 11,670 tonnes. Interestingly, cheese is the only product that is estimated to experience a small increase in exports from both partners. However, the net trade in cheese is expected to remain almost unchanged as the increase is proportional.

There is currently minimal bilateral trade of skimmed and whole milk powder. In 2012, New Zealand exported 25 tonnes of skimmed milk powder and 2,267 tonnes of whole milk powder to the EU, while the EU exported 119 tonnes of skimmed milk powder and 817 tonnes of whole milk powder to the New Zealand market. In the same year, New Zealand was a net exporter of whole milk powder in trade with the EU, while the EU was a net exporter of skimmed milk powder in trade of the same with New Zealand. Under a full liberalisation scenario, it is estimated that the trade quantities and patterns of trade for these products would remain almost unchanged.

8.5 Limitations and directions for further research

The policies simulated in this research saw the application of tariffs and quotas to bilateral trade and the impact of the difference between domestic and world market prices was assessed. This study did not address the effects of non-tariff barriers and/or quality issues such as phytosanitary and sanitary requirements. Currently, non-tariff barriers impose relatively high protectionism, so elimination of these policies could have significant effects. Future research should quantify such policies and measure their impact on bilateral trade. Furthermore, it would be important to measure the effect of the FTA on other sectors as well as the whole economy to identify interactions between different sectors, as it is likely that the EU would experience a higher impact in the automotive and/or pharmaceutical industries, which in turn would compensate for any negative effects in the agricultural sector.

Some limitations exist in this research relating to aspects of the modelling framework. Firstly, the model simulates from the base year of 2012, but it would be more desirable to simulate from a later base year. At the time this research began in 2014, a base year of 2012 was appropriate and the data for 2013 and 2014 were not available at that time. However, a more recent base year may provide a slightly different picture. For example, in recent years there has been a slight downward trend in exports of cheese and butter from New Zealand to the EU. If the model had run from a later base year, the results might better reflect more current trade. However, the aim of this research was to indicate the relative changes between the base scenario and the different bilateral liberalisation scenarios, which the model achieved.

A lack of the most recent data on own-price and cross-price elasticities of demand and supply and income elasticity was a limitation. However, at the start of this research in 2014, the most recent elasticities were already in the model. Elasticities estimated from quantities, price and income of a country would have been ideal, but this would have involved a considerable amount more research and was considered to be beyond the scope of this study.

Another limitation relates to the model used in this research. While the LTEM is flexible and allows the addition of new variables, equations, policies and data into its structure, it is a non-bilateral trade model mostly used for calculating net trade of commodities in each country rather than bilateral trade flows. However, bilateral trade policy can be incorporated into the model through modification of supply, price and net trade equations of two countries. As described in detail in Chapter 5, in order to simulate the economic impacts of a potential FTA agreement between New Zealand and the EU using different liberalisation levels within the agricultural sector, the LTEM structure was modified and the database was updated. A method of dividing commodities was used in this research, providing a way to analyse bilateral trade in a partial equilibrium framework. However, it would be useful to use a bilateral model and compare results with this study. Furthermore, products listed in the LTEM are homogenous, which limits analysis to very broad results as it is not possible to differentiate between varying qualities of the same product. This is particularly limiting for cheese and wine, which are very differentiated products. Because products are homogeneous, an average tariff was applied to groups of goods. For example, it was straight-forward to implement tariffs on kiwifruit or grapes (8.5 and 14.5 percent, respectively), but it was more difficult to determinate the average

tariff for products such as wine or cheese where there are many different tariff lines. This problem was overcome by looking at trade data and taking the averaged tariffs. For example, in 2012 New Zealand exported only cheese for processing and cheddar to the EU market; as no other cheese type was shipped, the tariff was identical for both products.

The most apparent limitation of this research is its focus on agriculture; the potential economic impacts of the FTA are estimated only for the agricultural sector. However, this is also a strength of this research as it provides more in-depth analysis. The importance of agriculture to New Zealand and the EU have been made apparent throughout this thesis, therefore if more sectors had been included the detailed consideration of the agricultural sector would not have been possible. It would be important to measure the effect of the FTA on the whole economy and identify any interactions between different sectors. Ideally, the LTEM should be used in conjunction with a CGE model so that a detailed agricultural analysis could accompany the effects of the whole economy.

A recent issue not examined in this study that will be crucial for further investigation is to analyse how Brexit will affect FTA negotiations. In June 2016, the UK held a referendum on whether Britain should remain in the EU and the outcome was to leave. Since the UK joined the EU, it has not been an active member of WTO negotiations as all commitments were placed at the EU level. One of these commitments has been quantitative market access such as tariff rate quotas. Currently, the EU has 112 separate tariff quotas and the main challenge will be where tariff rate quotas have been obtained through bilateral negotiations with the third country; for example, New Zealand currently has country-specific tariff rate quotas for its high-quality beef, sheep, cheese and butter exports to the EU market. Changing this would require the consent of the importing country, New Zealand, which makes negotiation processes more complicated. In such situations, some WTO members could feel that the agreed division of commitments discriminated against their market access entitlements under the agreement and they may seek improvements or compensation in lieu. Therefore, how these quotas will be divided is crucial for New Zealand. This issue would be overcome if New Zealand succeeds in obtaining the FTA with the EU before the Brexit negotiations are finished; however, this is very unlikely to happen.

Currently, the UK is not able to negotiate its own trade agreements, as this has been conducted at the level of the EU; as an EU member, the EU's existing FTAs currently apply to the UK. This complicated issue relates to what extent the UK will inherit the same rights and obligations under the EU's trade agreements. The UK may decide to sign new agreements outside of the EU with the same trade partners; while certainly feasible, this would be very time-consuming because of the number and detail of the provisions of these agreements. On the other hand, the UK may intend to continue, to the extent that the other partners agree, these agreements after Brexit. The EU is already engaged in negotiating a broad range of new agreements; it has no reason to adjust its existing trade agreements simply to accommodate the UK, as this would be very time-consuming. It is doubtful that the tariff rate quotas under these agreements will be renegotiated. One solution would be for the UK to negotiate its market access arrangements for tariff rate quotas as part of a full renegotiation of bilateral agreements with these countries.

Until the end of March 2019, the outcomes of negotiations on Brexit will be unclear. However, it would be important to examine the potential impacts of a FTA between the EU 27 and New Zealand and compare that with the results of this research. Future research will require an extension of the LTEM in order to simulate the effects of Brexit on the FTA. Currently, the LTEM does not include the UK as a separate country. Therefore, it will be necessary to include it in the model, which would require extensive collection and entering of data, not only for the UK but also for the EU 27. Furthermore, these changes to the model will allow for a potential FTA between the UK and New Zealand to be simulated.

8.6 Conclusion

This thesis highlights potential gains from the EU and New Zealand FTA. As New Zealand's second largest trading partner in recent years, the EU is an important market for New Zealand goods and services. As New Zealand largely exports agricultural products to the EU, it is important for New Zealand to gain free access and liberalise trade in agricultural products. Certainly, the presence of high tariffs and quotas in the EU suggests that New Zealand could reasonably demand that trade discussions begin there. As a competitive producer of high-quality beef, sheepmeat, fruit and wine, New Zealand would be very keen for the inclusion of these products in a FTA, while EU producers of the same may be expected to object.

However, analysis of other EU FTAs shows that the EU has previously protected its agricultural industry by restricting liberalisation of its products within tariff elimination schedules or by excluding them from trade agreements. The EU liberalised those products that were not a threat to its domestic producers but protected those that posed a threat to its farmers. In the EU, there is concern that if one competitive producer gains access through a FTA that others will want to negotiate or renegotiate their own FTAs to gain equal access to the EU's protected market.

In 1973, the UK's accession to the EEC adversely affected New Zealand's exporters of agricultural products. New Zealand diversified its markets and the EU market has since declined in importance for New Zealand's agricultural exporters. The Common Agricultural Policy (CAP) has changed over the last few decades but many of the EU's agricultural sectors are still significantly protected. A FTA with the EU that incorporates agricultural products important to New Zealand's competitive producers in a meaningful way would require incorporation of the EU's regulatory standards, for example, recognition of geographical indications. This would consequently result in adjustments to New Zealand's domestic regulations. The CETA, as the most recent and comprehensive of EU agreements, may provide some clues for New Zealand as to how FTA negotiations may progress and improved access for agricultural products to the EU may be possible. For example, the CETA significantly reduced tariffs on agricultural goods, with the majority eliminated immediately. The EU was willing to increase the beef quota, which was a politically sensitive issue. However, at the conclusion of negotiations the EU's particular agricultural products that have always been heavily protected remained guarded in the CETA.

It is important to state that the EU has been a significant net exporter of agricultural goods to Canada, which is different from the case of New Zealand. Whether New Zealand could do better than Canada in an agreement with the EU remains an open question. It is challenging to understand how the EU's heavily protected agriculture could be integrated into a FTA with New Zealand's competitive agricultural exporters. Success in the agricultural sector will depend on New Zealand's willingness to offer concessions in other areas such as services. Overall, as explored in this thesis, despite the fact that the EU market has declined in importance for New Zealand's agricultural suppliers, there is still high motivation and opportunity to negotiate

reductions and elimination of tariffs and quota agreements in some key markets such as dairy, beef, fruit and wine.

A FTA between New Zealand and the EU would represent a comprehensive and ambitious agreement that could serve as a template for the EU's future negotiations with Australia and Asia-Pacific countries. The EU would seek to address traditional market issues and bring to the negotiation non-trade barriers behind border obstacles to trade. The EU's high level of ambition in relation to the liberalisation of non-tariff barriers in areas such as agriculture, services, investment and public procurement would be the priority of the EU. A FTA between the EU and New Zealand would strengthen trade and investment relations between the two parties, provide preferential access to goods, services and investments to the members and enhance the level of integration.

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